CHALLENGE TITAN 200 PAPER CUTTER

Instruction Manual
Serial Numbers 032425 & Up

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OPERATIONAL AND PARTS MANUAL

The Challenge Machinery Company
6125 NortonCenter Drive
Norton Shores, MI 49441-6081 USA

ChallengeMachinery.com

TITAN 200

PAPER CUTTING MACHINE

Sold and Serviced by

F.200-C
June 2003

1.0 Introduction

THIS MANUAL is designed to help you get the most from your Challenge equipment. Keep this manual in a safe, convenient place for quick reference by operators and service personnel.

⚠ CAUTION **SAFETY ALERT!** This symbol means **CAUTION: Personal safety instructions!** Pay special attention to the instructions in bold type. Personal injury may result if the precautions are not read and followed.

READ THIS MANUAL BEFORE OPERATING! Follow precautions and instructions given and you should have years of trouble-free operation. If after reading the manual questions still remain, contact your Authorized Challenge Dealer.

FOR PARTS AND SERVICE contact the Authorized Challenge Dealer from whom you purchased your machine. Use the illustrations and parts lists at the back of this manual to identify the correct parts needed. Always give the **SERIAL NUMBER** and **MODEL** of your machine to insure the correct parts are sent as soon as possible.

Take a few minutes right now to **RECORD YOUR MACHINE SERIAL NUMBER** in the space provided on the front cover of this manual. Also be sure to fill out the warranty card accompanying your machine and return it **DIRECTLY TO CHALLENGE.**

If you bought a used machine, it is important to have the following information on record at Challenge. Copy this page, fill in the information and send it care of The Challenge Service Department • 6125 Norton Center Drive • Norton Shores, MI 49417-1594.

CHALLENGE MODEL	SERIAL NUMBER	
ATTN	COMPANY	
ADDRESS		
CITY	STATE/PROVINCE	ZIP
PHONE	DATE INSTALLED	
DEALER NAME & CITY		

*** WARRANTY INFORMATION ***

It is very important that you read and understand the conditions outlined in the *Warranty Information Sheet* attached to the outside of the shipping container of your machine.

The *Warranty Information Sheet* must be filled out completely and returned to THE CHALLENGE MACHINERY COMPANY in order for the warranty to be issued for this machine.

TABLE OF CONTENTS

2.0 Safety

2.1 Precautions

- This machine is designed for one-person operation. Never operate the machine with more than one person.
- Safe use of this machine is the responsibility of the operator. Use good judgment and common sense when working with and around this machine.
- Read and understand all instructions thoroughly before using the machine. If questions remain, contact the dealer from which you purchased this machine. Failure to understand the operating instructions may result in personal injury.
- Only trained and authorized people should operate this machine.
- DO NOT ALTER SAFETY GUARDS OR DEVICES. They are for your protection. Severe personal injury may result.
- **Disconnect power** before cleaning or performing maintenance. See Section 2.2 Power Lockout Procedure.
- Observe all caution labels on this machine.
- Be sure the cutter is properly grounded.
- Be sure there is sufficient power to operate the cutter properly.
- Observe all caution plates mounted on this cutter.
- Keep foreign objects off table and away from cutter blade.
- **BE EXTREMELY CAREFUL** when handling and changing the cutter knife. Severe lacerations or dismemberment could result from careless handling procedures.
- Keep the floor around the cutter free of trim, debris, oil and grease.
- When replacing hydraulic parts, loosen the connections slowly to release pressure. Never loosen connections with the machine running.
- If the cutter sounds or operates unusually, turn it off and consult the troubleshooting section of this manual. If the problem cannot be corrected, have it checked by a qualified service person.
- **CRUSH HAZARD**, keep hand and fingers from under the clamp when clamping paper. Use Jogging Aid to load paper, and use the backgauge to push paper out before unloading. **DO NOT REACH UNDER THE KNIFE AND CLAMP AREA!**

2.2 Power Lockout Procedure

For maximum safety while making adjustments or repairs to your machine, be sure to disconnect power to the machine. Disconnect the power plug from its socket

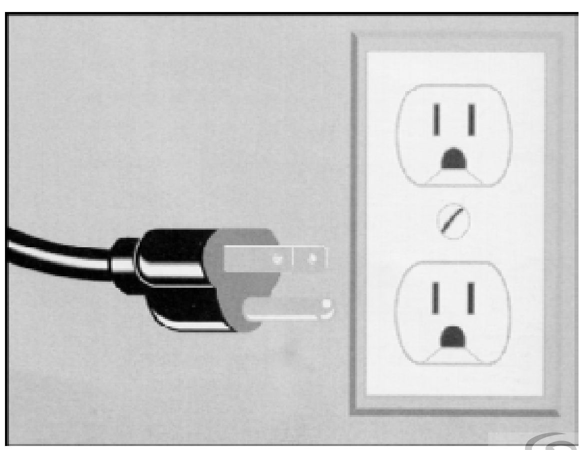
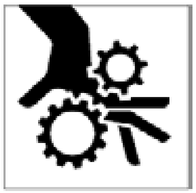


Figure 1 - Main Power Disconnect

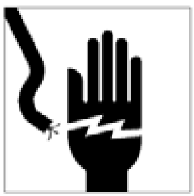
2.3 Warning Label Definitions

The following warning labels are found at various locations on your machine. Read and understand the meaning of each symbol. If a label is lost from the machine, it should be replaced.



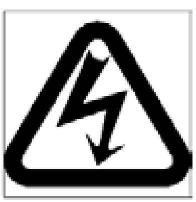
HAZARDOUS AREA

Disconnect power before cleaning, servicing, or making adjustments not requiring power. Do not alter safety guards or devices; they are for your protection. Replace all guards. Do not operate with any guards removed.



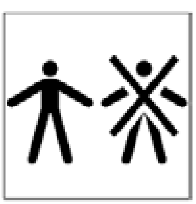
SHOCK HAZARD

Disconnect power before removing cover. Replace cover before operation.



SHOCK HAZARD

Disconnect power before removing cover. Replace cover before operation.



SINGLE OPERATOR

Do not operate with more than one person.

!OJO!

CAUTION This Este simbolo de alerta de seguridad significa ¡ OJO ! - INSTRUCCIONES DE SEGURIDADPERSONAL. Lea las instrucciones porque se refieren a su seguridad personal. Fall de obedecer las instrucciones que siguen podria resultar en lesiones corporales.

- Esta maquina, junto con sus mecanismos de seguridad, esta disenada para ser manejada por
- **UNA SOLA PERSONA** a la vez. Jamas debe ser manejada por mas de una persona al mismo
- tiempo.
- La seguridad es la responsabilidad del operario que usa esta maquina.
- **LEA DETENIDAMENTE** el manual de instrucciones y las **PRECAUCIONES DE SEGURIDAD** antes de poner a funcionar la cortadora. Pidale a su supervisor una copia.
- El manejo de la guillotina debe estar exclusivamente a cargo de personal entrenado y autorizado para ello.
- **NO MODIFIQUE LOS MECANISMOS DE SEGURIDAD**, estan ahi para su proteccion no deben ni modificarse ni quitarse.
- **DESCONECTE LA CORRIENTE ELECTRICA** antes de proceder a hacerle servicio de limpieza, engrasar, o de hacer adjustes que no requieren corriente. Trabe el interruptor en la posicion **OFF** (apagado); vea "Procedimiento para cortar la corriente electrica" al pie de esta pagina.
- Eche llave a la guillotina y quite la llave cuando la maquina no esta en operacion; vea "Corriente electrica".
- Asegurese de que la guillotina este debidamente a tierra. Vea "Conexion de la fuerza electrica".
- Verifique el voltaje y asegurese de que este sea suficiente para el debido funcionamiento de la guillotina.
- Preste atencion a todas las placas con advertencias instaladas en esta guillotina.
- No permita que objetos estranos esten en la mesa o cerca de la cuchilla cortadora.
- **TENGA SUMO CUIDADO** al tocar y cambiar la cuchilla. Heridas severas y hasta desmembramiento pueden resultar del manejo sin cuidado o negligente.
- El suelo alrededor de la guillotina debe mantenerse despejado y libre de recortes, desperdicios, aceite y grasa.
- Al haber la necesidad de reemplazar partes hidraulicas, afloje todas las conexiones poco a poco para dejar escapar la presion. Jamas debe aflojarse conexiones mientras la maquina este
- andando.
- Si la guillotina empezara a sonar o trabajar diferentemente a lo acostumbrado, desconectela y consulte la seccion "Troubleshooting" (Reparador) de este manual. Si no es posible corregir el problema, llame a su servicio autorizado para que le examinen la maquina.
- **PELIGRO DE MACHUQUE -** Mantenga manos y dedos fuera de la agarradera mientras sujeta el papel. Use el calibrador trasero y su rueda de mano para empujar el papel cortado. **NO PONGA SUS MANOS BAJOLA CUCHILLA O AREA DE LA AGARRADERA.**
- **NO OPERE SIN LAS GUARDAS PROTECTORAS!**

¡ OJO ! PRECAUCION - Como proceder para desconectar la corriente electrica.

Para maxima seguridad durante ajustes y reparaciones de su maquina, verifique bien que el interruptor principal de control de corriente al cual la maquina esta conectada, este desconectado. El interruptor deba ser puesto en la posicion "OFF" (desconectado) y se debe poner un candado en la anilla. La llave del candado debe ser guardada por la persona que estara efectuando los trabajos de servicio o de reparacion en la guillotina.

Desconecte la corriente electrica antes de proceder a hacer cualquier ajuste o reparacion o de efectuar el engrase en cualquier maquina.

3.0 Packing List



Part No.	Description	Qty.
A-10034	Knife	2
4166	Cutting Stick (in addition to one installed in machine)	3
F.200-C	Instruction and Parts Manual	1
A-12608-2	Jogging Aid	1
20-2150-2	Tool Kit	1
H-6918-608	Knife Bolts, 3/8 – 16 x 1”	4
8815	Knife Washers, Special	4
5064	Cutting Stick Puller	1
43108	Knife Lifter Assembly	1
W-130	3/16” Allen Wrench	1
W-137	5/32” Allen Wrench	1
W-164	5/16” Hex ‘T’ Wrench	1
W-170	9/16 x ½” Wrench	1
SU-10-113	Grease Brush	1

Optional Items

Part No.	Description	Qty.
AA-10061	False Clamp Plate	
5-7-M361	Backgauge Book Guides	
4166	Cutting Stick	
A-10034-1	High Speed Steel Knife	

4.0 Specifications

Description	Inch Units	Metric Units
Cutting Width	20”	51 cm
Minimum Cut*	½”	13 mm
Clamp Opening	3 ¼”	8 cm
Table Space Front: Back:	 15¼” 20”	 39 cm 51 cm
Dimensions		
Table Height	36”	91 cm
Overall Height	53”	135 cm
Overall Length***	49”	124 cm
Overall Width	36”	91 cm
Approx. Net Weight	800 lbs	361 kg
Approx. Shipping Weight	920 lbs	418 kg
Electrical		
208/230 Volts, 12 Amps, 1 Phase, 60 Hz, AC. Service size 15 Amps Recommended Recepticle: 208-230 Volt, NEMA 6-15R, NEMA 6-20R **UL/cUL Listed**		
Sound Emission		
A-weighted sound pressure level measured in an enclosed room at operator level (6 feet/183 cm): Machine cutting a full lift of paper: 77 dB		

*With false clamp plate attached, minimum cut is 1-7/8” (48 mm).
**For complete floor plan layout, see page 70.
***With table, front guard or elec eyes, and foot treadle removed, can be fit through a 28” (71 cm) door opening.

Challenge reserves the right to make changes to any product or specification without notice and without incurring responsibility to existing units.

5.0 Installation & Setup

5.1 Inspecting Shipment

This machine has been carefully packed to prevent damage during shipment. However, claims for damage or loss are the responsibility of the recipient. Inspect all shipments as soon as they are received. If there is any noticeable damage, note it on the freight bill. Visual and/or hidden damage must be reported to the claims department of the carrier within 15 days. Contact your dealer if you need any assistance. Check the contents of the box against the packing list on page 8. Make sure there are no missing items.

5.2 Uncrating

The Titan 200 weighs approximately 755 lbs (342kg). DO NOT risk personal injury or damage by attempting to move machinery with makeshift equipment or inadequate manpower. This machine is shipped on a wooden skid and enclosed in a protective, corrugated top. The skid is designed to allow the machine to be rolled off without any special lifting equipment. The machine is held in place by two, 2x4 braces lag bolted to the skid. All accessories are shipped inside of the machine.

Remove the carton by removing the nails or staples holding it to the skid and lift it straight up over the cutter. If you don't have the ceiling clearance to do this, carefully slit the carton down the side and then unwrap it from around the cutter.

Remove all lag screws from the skid. Remove the lower front cover of the Titan 200 and remove the two lag screws in the base. Remove the accessories.

Using the rear bumper board, pry one side of the machine up, and slide out the top layer of the support riser (Figure 2). Do the same on the other side.

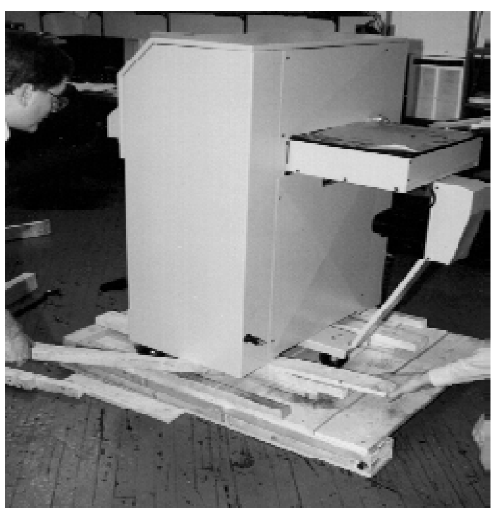


Figure 2

Use the flat board provided as a ramp and position as shown in (Figure 3 on page 11). Hold the ramp in place with the nails provided. Make sure the casters are not locked and very carefully roll the machine down the ramp. The cutter may now be rolled into position.

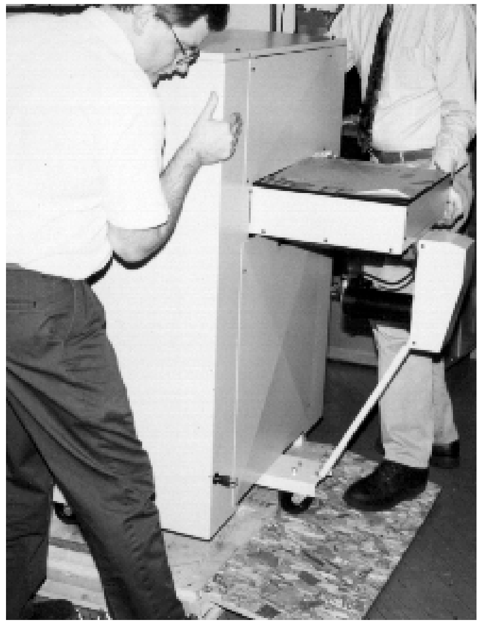


Figure 3

5.3 Cleaning

After unpacking, wipe down all machine panels and clean the table surface.

5.4 Fitting Through Narrow Door

The Titan 200 cutter will not fit through an opening less than 36” (91 cm) without the table being removed. With the table removed, the Titan 200 will fit through a 35” (89 cm) opening. With the table, front guard, and foot treadle removed, it will fit through a 28” (71 cm) opening.

5.4.1 Removing the Table

Make sure the knife and clamp are in the “up” position. If they are not, read the Power Hookup section (page 17) to connect power to the machine. Turn on the power using the red and yellow main power switch, close the front guard, and press the CLEAR button. This will preset the backgauge and send the knife and clamp up.

Turn off the machine and unplug the power cord.

If equipped with electric eyes, remove the electric eye mounting brackets, the small side tables, and the side table mounting bracket from bottom of table.

Remove the cut buttons from the bottom of the table.

Remove the Plexiglas cover and the three sheet metal covers on the rear of the table. Remove the backgauge motor cover, the rear table support leg, the lower back panel, and the lower front cover of the machine.

Unplug the cable to the encoder at the back of the machine (Figure 4 on page 12).

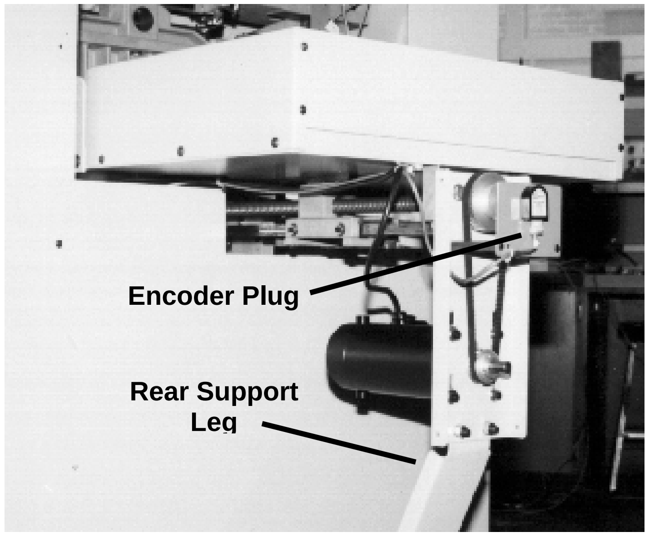


Figure 4C

Remove the motor junction box cover and disconnect the wires to the motor (Figure 5). Remove the leadscrew cover and the nylon tyraps that are attached to the bottom of the table. The motor wires and encoder wires should now be free from the table.

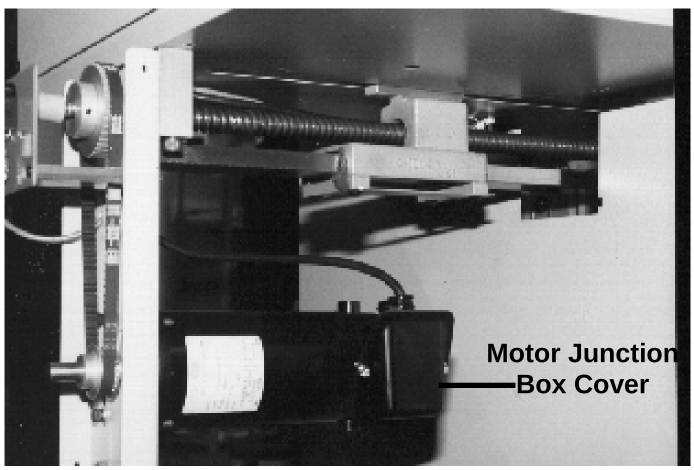


Figure 5

From the rear of the machine, remove the presetter board assembly from the table (Figure 6 on page 13).

Open the front guard (if equipped); open the top cover and remove the left and right side guides and the cut stick stops as shown in (Figure 7 & Figure 8 on page 13).

Next, remove the cut stick from the table using the cut stick removal tool. Locate the two taper pins in the cut stick slot. These must be tapped out from under the base through the table slot and removed. Then remove the four screws that mount the table to the base. NOTE: The table assembly is very heavy and requires two people to remove. Pull the table out from the back of the machine. Locate the four round spacers that were between the table and the base - you will need them later for mounting the table.

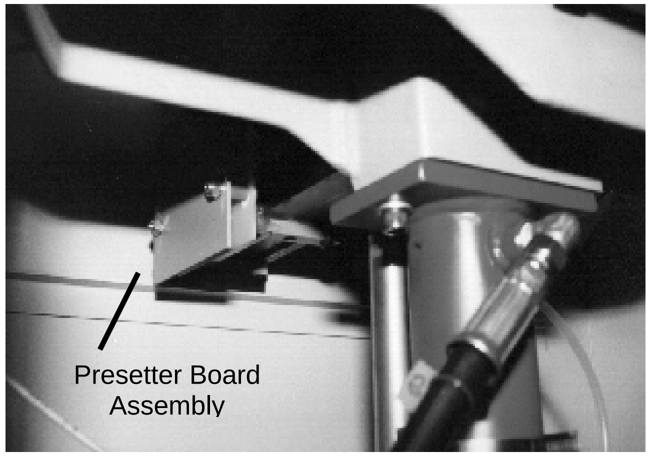


Figure 6

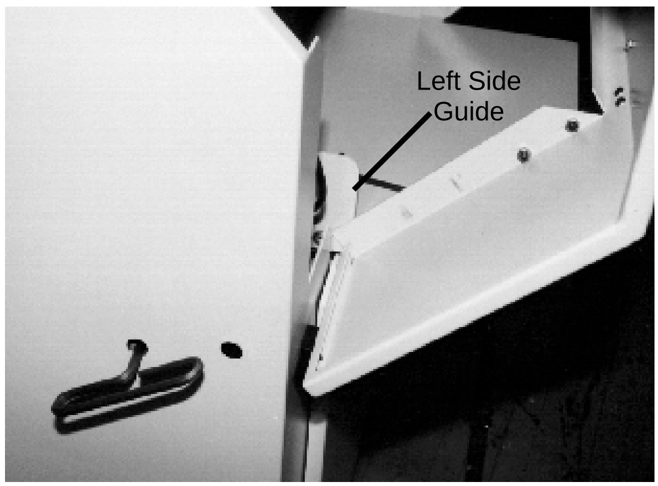


Figure 7

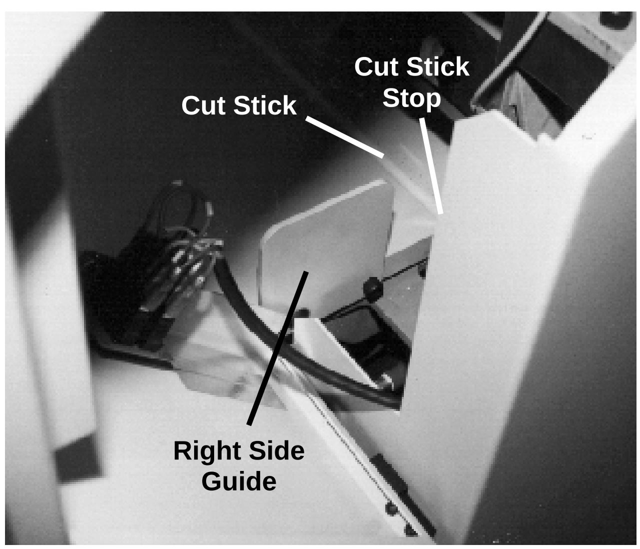


Figure 8

5.4.2 Removing the Foot Treadle

Make sure the power is off and the power cord is disconnected. Remove the lower front cover. Use an open-end wrench to remove the two cables attached to the base, which hold up the foot treadle. Carefully, remove the springs. Now remove the pins at the rear pivot points of the foot treadle. Remove the treadle.

5.4.3 Removing the Front Guard (If Equipped)

Make sure the power is off and disconnect the power cord. Open the front guard. Remove the cylinder bracket screws (Figure 9).

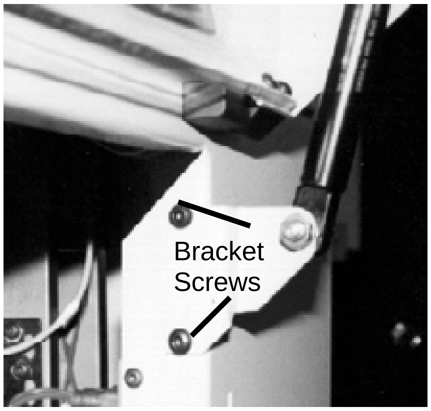


Figure 9

Then open the top hood and remove one set of hinge screws (Figure 10). Slide the front guard out of the other hinge.

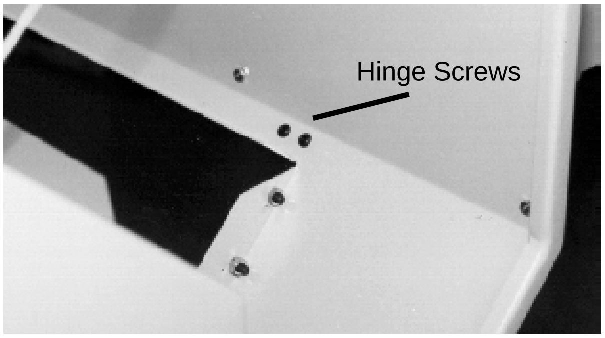


Figure 10

5.4.4 Reattaching the Table

Set the table in position. Lift the table from the front and set the two front spacers in place. Insert the front two socket head screws, but do not tighten. Lift the table from the rear and set the two rear spacers in place. Start the rear two socket head screws. Reinsert the two taper pins, and tap into position so they are below bottom of the slot. Tighten all four screws. Attach the right and left side guides (Figure 7 & Figure 8 on page 13), the presetter board assembly (Figure 6 on page 13), the motor and encoder wires (Figure 4 & Figure 5 on page 12), and all other items that were removed. Once the table is installed, the backgauge squareness and accuracy will have to be reset. See page 26, the Accuracy Adjust section; and page 46 the Squaring the Backgauge section.

5.5 Installing Optional Extension Tables (Front Guard Machines Only)

Using the wood screws provided, attach a back plate to each extension table. Using (4) 3/8-16 capscrews, attach the table support to the under side of the main table as shown in (Figure 11). Route each cut button wire through the slots in the bracket and relocate the cut buttons to the extension tables (as shown). Place the provided flat washers on the table support above each slot receiving a screw to mount the extension table on the support. Lay the table extension on top of the spacers and insert the screws. Slide the table extension tight to the table. Shim the extension tables as necessary to make the tables flush using the provided shims.

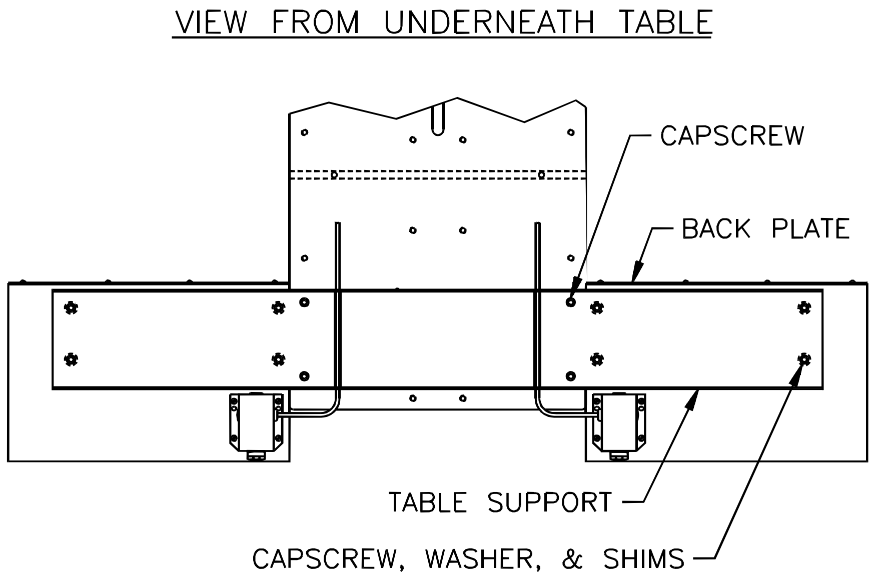


Figure 11

5.6 Hydraulic System Check

The cutting/clamping mechanism of the Titan 200 is powered by a hydraulic system consisting of an electric motor coupled directly to a hydraulic pump.

The hydraulic reservoir holds 4 quarts (1 gallon) of hydraulic fluid. It is filled with Rykon 100 hydraulic fluid at the factory but should be checked before operation. Remove the lower rear panel cover and unscrew the cap on top of the tank (Figure 12 on page 16). Fluid level should be at 1/8” from the end of the dip stick (check with dip stick cap screwed in). Add fluid if necessary but avoid overfilling as this could cause leakage when hot. Replace the rear panel when finished. For more information about checking and changing the hydraulic fluid, including a cross-reference chart of approved fluids, see section 8.2.1 on page 42 of this manual.

The hydraulic fluid should be checked weekly and changed **AT LEAST ONCE-A-YEAR** or after every 1,000 hours of operation.

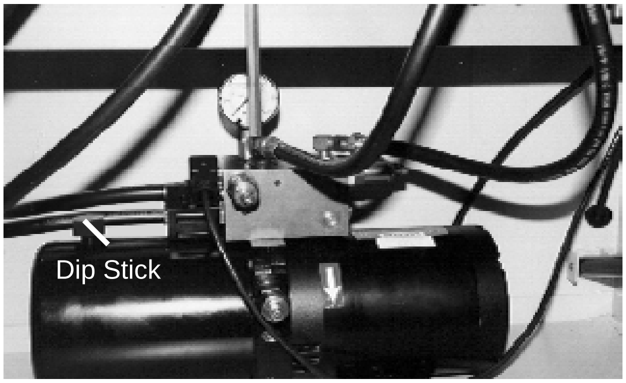


Figure 12

5.7 False Clamp Plate (Optional)

To prevent marking on pressure sensitive jobs, a false clamp plate is available as an optional item for your machine. This plate attaches to the bottom of the clamp. It is secured with wing nuts on studs that pass through the top of the clamp.

To install:

1. Make sure the knife and clamp are in the up position. If they are not, turn on the power using the red and yellow main power switch, close the front guard, and press the CLEAR button. This will preset the backgauge and send the knife and clamp up.

2. Turn the power off and disconnect the power cord.

3. Open the front guard (if equipped) and slide the false clamp plate under the knife and clamp (Figure 13) and slide the plate up into position with the locator pins toward the front of the machine. The locator pins insert into holes in the bottom front of the clamp.

4. Hold the plate in position and secure with the wing nuts provided.

5. Change the false clamp setting of the machine to ON to **prevent the backgauge from crashing into the false clamp plate.** This is done in the Maintenance Mode/Parameters/False Clamp screen. For more details on how to do this, see page 25.

NOTE: The minimum cut with the false clamp plate attached is 1-3/4"

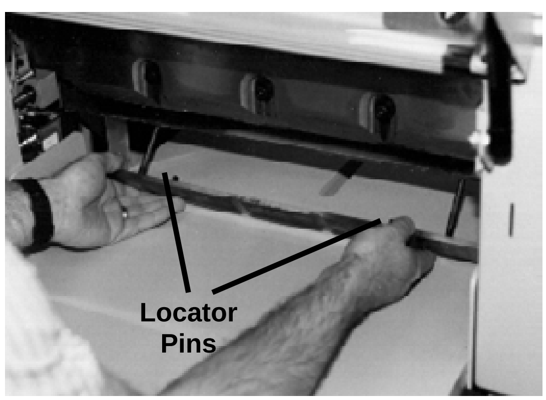


Figure 13

5.8 Power Hook-Up

CAUTION **SHOCK HAZARD! NEVER CUT THE GROUND PLUG** from a three-prong plug to fit a two-prong socket. Possible shock could cause personal injury or death. Hire a qualified electrician to provide a power source that meets electrical requirements and all local electrical codes.

It is the customer's responsibility to provide a properly grounded receptacle that meets the power requirements specified on the nameplate of this machine, as well as all local electrical codes. Have a qualified electrician install one if your location is not so equipped.

Check incoming voltage and position the voltage selection jumper in the proper location as shown below:

NOTE: The terminal block jumper must be set to the correct location according to the supply voltage of the machine. Failure to set the terminal block jumper will cause damage to the machine!

Connect the power cord into a grounded, 3-prong receptacle only! (Recommended receptacle: 208-230 Volt, NEMA 6-15R, or NEMA 6-20R.)

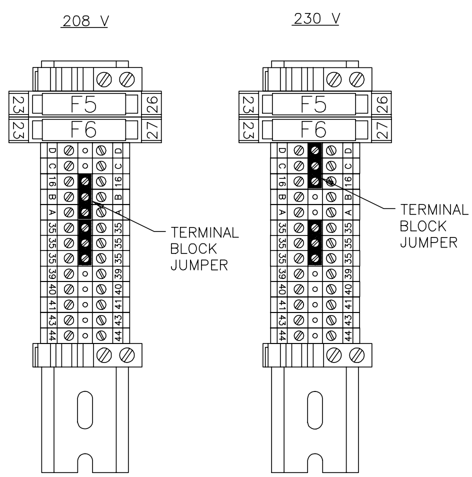


Figure 14

5.9 Line Light

The Titan 200 is equipped with two lights, which provide a line of light on the paper in the approximate location of where the paper will be cut. The lights come on when power to the machine is turned on. The light from each bulb reaches the table after passing between the knife and clamp. Each light is focused with a socket head capscrew (Figure 15 on page 18).

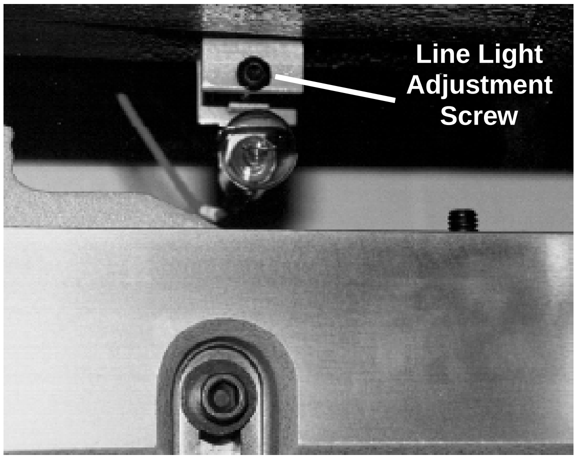


Figure 15

5.9.1 Adjustment

1. Place a wide sheet of paper on the cut stick to view the line light.

2. Using a 3/16" hex allen wrench, turn one of the cap screws until you see a 1/16-1/8" beam. Note: it is best to start by turning the screw clockwise. If the screw turns all the way in before a line appears, begin turning the screw counterclockwise.

3. Similarly, turn the adjustment screw of the other bulb, until one continuous beam is seen across the cut stick.

5.9.2 Bulb Replacement

1. Make sure power is off and unplug the machine (see Power Lockout Procedure, page 5).

2. Open the front guard (if equipped).

3. Remove the old bulb by lightly pushing the bulb into the socket and turning it counterclockwise. **CAUTION!** If the bulb is still hot, allow a few minutes for it to cool.

4. Insert the new bulb into the socket and twist it clockwise until the bulb locks into place.

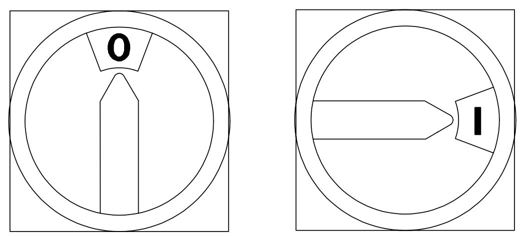
5. Reconnect power and turn the main power switch on. Readjust the line if necessary.

6.0 Operation

CAUTION **IMPORTANT: DO NOT ATTEMPT TO OPERATE THE CUTTER UNTIL YOU HAVE THOROUGHLY READ AND UNDERSTAND ALL OF THE FOLLOWING INSTRUCTIONS. CALL YOUR AUTHORIZED CHALLENGE DEALER IF YOU STILL HAVE ANY QUESTIONS.**

6.1 Power – Main Switch

Power is brought to the machine when the main power switch is turned to the "ON" position (Figure 16). The display and line lights are turned on at this time. The hydraulic motor will not be activated until a cut cycle is initiated, and it will shut off after the completion of the cut cycle.



OFF ON

Figure 16 –Power On-Off Switches

The display and line lights will shut off after 5 minutes without any activity. This shut-off time can be changed in the Parameters screen of the Maintenance Mode (section 6.12.2 on page 25). To restore power to the display and line lights, press any button on the keyboard or lift up the front guard (if equipped).

6.2 Start Up

Once power has been turned on, the Titan 200 will show the following display:

55.000 in
Backgauge must move to be preset.
Please clear the table and close guard.
Warning! Clamp and Knife may move.
Revision 1.0

Press clear to start
A) Maint
B) Job

When the CLEAR key is pressed the clamp and knife will move up if they are not already in the up position (provided the front guard is closed, if equipped). Then the backgauge will move to coordinate the true position into the computer. When finished, the machine will be in "Send Mode" and the display will appear similar to the display shown on top of the next page.

```
5.000 in

>_

A) Maint
B) Job
```

The backgauge may now be sent to a desired position by simply typing the dimension and pressing SEND (see the Send Mode section, page 24, for more details).

6.3 Making a Cut (Machines With Electric Eyes)

Place the paper against the backgauge and left side guide. Note: If the cut will leave strips of paper less than 1/2" wide, place the paper against the right side guide. This will prevent the strips from getting caught in the small opening near the left side guide.

To make a cut, make sure there are no obstructions between the electric eyes, and press both cut buttons (located beneath the front face of the table) within 1/2 second of each other. Hold the buttons in until the knife reaches the table. Releasing the cut buttons at any time during the cut cycle will immediately send the knife and clamp to the "up" position.

6.4 Making a Cut (Machines With Front Guard)

Open the front guard and place the paper against the backgauge and left side guide. Note: if the cut will leave strips of paper less than 1/2" wide, place the paper against the right side guide. This will prevent the strips from getting caught in the small opening near the left side guide.

To make the cut, close the front guard and press both cut buttons (located beneath the front face of the table) within 1/2 second of each other. Hold the buttons in until the knife reaches the table. Releasing the cut buttons or raising the guard at any time during the cut cycle will immediately send the knife and clamp to the "up" position.

Note: The guard must be opened and closed each time a new cut is made.

6.5 Jogging Aid

⚠ CAUTION Always remove the jogging aid from the table before making a cut.

A jogging aid is included as standard equipment with the Titan 200. This tool allows the operator to load and align paper without the need to place hands or arms under the knife or clamp.

To use, load the paper against the side and backgauge using the jogging aid (Figure 17 & Figure 18). Remove the jogging aid from the table, close the guard, and make the cut.

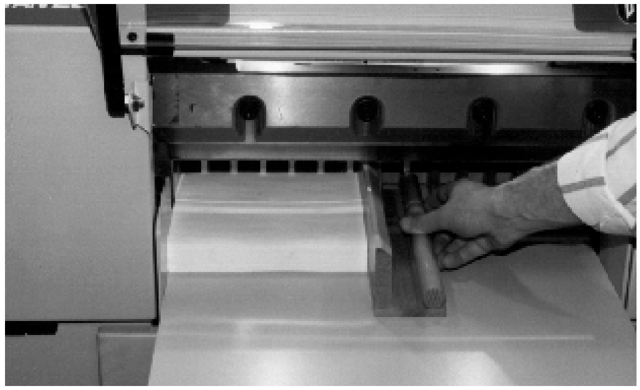


Figure 17



Figure 18

6.6 Knife Change Alarm and Lubrication Alarm

The Titan 200 has two built in alarms that will be displayed after a certain number of cuts. The knife alarm displays a message that notifies the operator to change the knife. The lube alarm displays a message that notifies the operator to have the machine lubricated. The lube alarm will also display the name and phone number of the Challenge dealer from which the machine was purchased. To reset either alarm, or to change the knife alarm value, see 6.12.2.5 Knife Count, page 26.

NOTE: The alarms do not prevent normal operation; they are simply reminders.

6.7 Manual Clamping (Using the Foot Treadle)

The Titan 200 is equipped with a manual clamping feature, which allows the operator to manually clamp paper before beginning the cut cycle. To use this feature, press down on the foot treadle until the clamp comes down on the paper. While holding the foot treadle down, close the guard (if equipped) and press both cut buttons. Release the foot treadle once the cut has been completed.

6.8 Display Panel

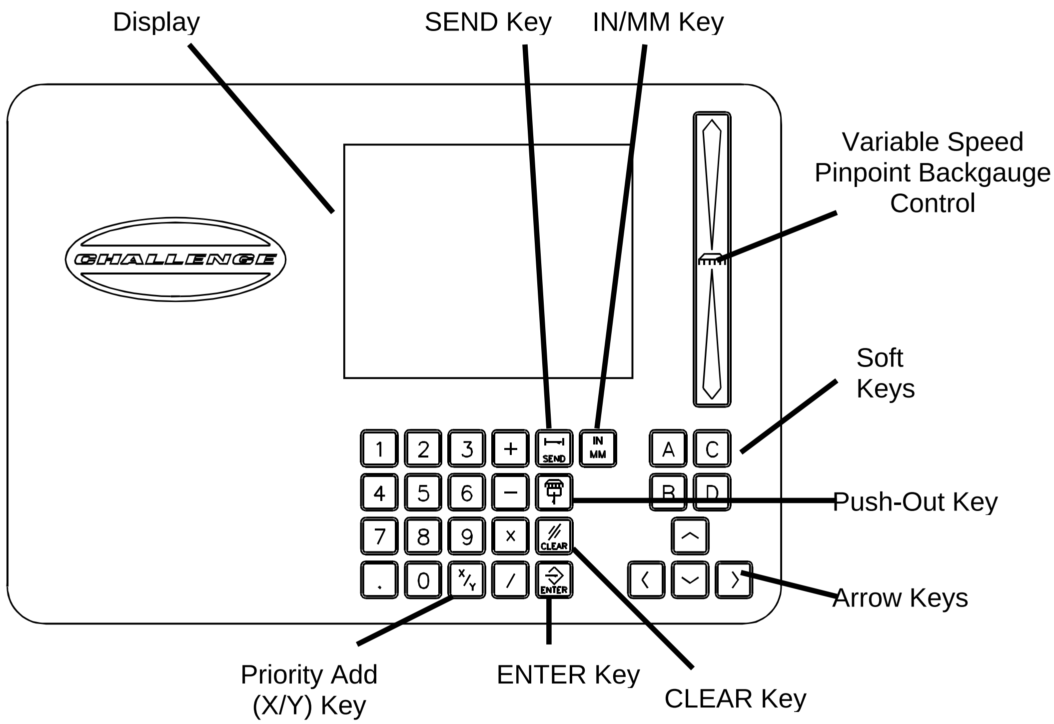


Figure 19

6.9 Definition of Keys

6.9.1 Variable Speed Pinpoint Backgauge Control

The backgauge control is used to manually position the backgauge. The speed of the backgauge will depend upon where the actuator is pressed. Press farther from center for a faster speed. Press toward the operator for forward direction and away from the operator for reverse direction.

6.9.2 IN/MM Key

This key toggles the display to show the position and programmed send values in inches (e.g. 5.250), inch fractions to the nearest 1/64" (e.g. 5_$^1/_4$), or millimeters (e.g. 133.3).

6.9.3 Send Key

The SEND key is used to send the backgauge to any valid position. If an attempt is made to send the backgauge to an illegal position, an error message will be displayed at the bottom of the screen stating "Number outside limit". In the Job mode, the SEND key will also advance the backgauge to the next sequential cut position before performing the cut.

6.9.4 Push-Out Key/Hold-To-Run Backgauge Key

This key has 2 functions. It is used to move the backgauge forward 5 inches (or to the most forward position) and then return it to its previous position. This allows paper to be removed from the cutter without putting hands under the knife and clamp. It also allows backgauge to move forward under program control if the electric eyes are blocked (or front guard is raised) for dimensions less than 3.5 inches (8.9 cm).

⚠ CAUTION Never place hands in the clamp and knife area. Use the push-out key or the backgauge glide control to move the paper to an area where it can be reached.

6.9.5 Clear Key

The CLEAR key is used to clear error messages and the current entry line.

6.9.6 Enter Key

The ENTER key selects items in the maintenance mode and processes data that has been entered in the other modes.

6.9.7 Priority Add (X/Y) Key

The priority add key is used for entering fractions when they are combined with whole numbers. The symbol displayed when this key is pressed is the underline symbol "_". An example of a number entered using the priority add key is 1_1/2 (see 6.11.2 Entering Fractions, page 24).

6.9.8 Soft-Keys

The soft-keys are labeled as A, B, C, and D. The definition for these keys change depending on the operating mode. The function of the key can be found on the bottom of the display screen.

6.9.9 Arrow Keys

The four arrow keys can be used in almost all screens. The arrow keys are primarily used for moving the cursor around on the screen, or to toggle between highlighted selections. In some screens, the left arrow key acts as a backspace key.

6.9.10 Contrast Control

The contrast of the display can be adjusted by using the contrast control knob, which is located directly behind the display panel, sticking out of the display panel cover. To access, open the front guard, reach in with your left hand until you feel the knob, and adjust the contrast as necessary.

6.10 Manual Backgauge Control

6.10.1 Backgauge Glide Control

The backgauge can be moved manually by use of the backgauge glide control. Press towards the operator for forward travel and away from the operator for reverse travel. The further away from center that the actuator is pushed, the faster the backgauge will travel.

6.10.2 Backlash Indicator

To insure accurate cuts, the backgauge must be brought to the cut position from the rear of the table. In the display, to the right of the backgauge position, there is a small arrow to indicate reverse travel (Figure 20). This arrow should be off when making a cut. Moving back past your cut position, then forward to it, compensates for any play in the backgauge nut and leadscrew.

6.11 Send Mode

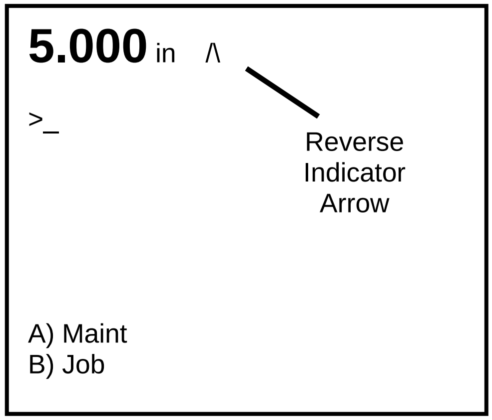


Figure 20

The send mode is the first screen displayed after the backgauge is preset. From this screen the backgauge can be positioned with the backgauge pinpoint control or by entering a value and pressing the SEND key. If the send value is less than approximately 4”, either the hood must remain down or the push out button held in, for the backgauge to continue to the send position. A mathematical expression can also be entered as a send value. Simply type the expression and press SEND. You can also enter an equation, which begins with the current backgauge position. For example, if you want to send the backgauge 2” forward from its current position, just press [-] [2] and SEND.

The send mode screen can also be used for doing math calculations that are larger than the backgauge’s reverse limit. In this case, you must press ENTER to have the result displayed on the screen.

6.11.1 Entering Math

In the simple send mode, the Titan 200 is capable of calculating an entire math string such as, 10-5+5x6+2_3/4. However, the result is limited to 29999.000 and the result cannot be a negative value. In the job mode, and during a send, the result of the calculation must be less than the backgauge limit of 20.000 inches.

6.11.2 Entering Fractions

Fractions are entered with the priority add key X/Y. The symbol displayed when this key is pressed is the underline symbol “_”. This instructs the computer to add the fractional portion of the entry before performing the remaining math. This key is useful when entering a formula as follows: 3x2_3/4 = 8_1/4. If a simple plus had been used instead, the result would be as follows: 3x2+3/4 = 6_3/4.

6.12 Maintenance Mode

The maintenance mode is an area where many machine functions can be set or modified. The four principle functions are: Language, Parameters, Diagnostic, and Knife Adjust. From the Send Screen, (Figure 20 on page 24), enter "A" to go to the Maintenance Screen. To select a particular function, use the up and down arrow keys to toggle to the desired function and press ENTER. See the following descriptions for an explanation of each function.

5.000 in

MAINT MENU
KNIFE ADJUST
PARAMETERS
DIAGNOSTIC
LANGUAGE

B) Job
C) Send
D) Exit

6.12.1 Knife Adjust

The knife adjust function provides a way for the service technician to adjust/change the knife. In the Knife Adjust screen, use the up and down arrow keys to toggle to the up or down status as desired, and press ENTER. Close the front guard(if equipped) and press the cut buttons to send the knife to the desired position.

NOTE: To exit the knife down screen and return to the main menu screen, press "D" exit.

6.12.2 Parameters

In the parameter screen, use the up and down arrow keys to toggle to the desired parameter, and press ENTER. See the descriptions that follow for an explanation of each parameter.

6.12.2.1 False Clamp

The false clamp plate is an optional attachment, which reduces the creasing of paper caused by the clamp. The disadvantage of using the false clamp plate is that it limits the smallest cut dimension. **The computer must know when the false clamp plate is installed on the machine to prevent the backgauge from crashing into it.** In the false clamp screen, use the up and down arrow keys to toggle between ON or OFF to indicate the presence of the false clamp plate, and press ENTER.

6.12.2.2 Time-out

The time-out parameter allows the operator to set the amount of idle time before the display and line lights turn off. The choices are 2, 5, 10, 20, and 30 minutes. In the time-out screen, use the up and down arrow keys to toggle to the desired time-out, and press ENTER.

6.12.2.3 Push-out

Normally, whenever the backgauge is sent to a larger dimension, a five-inch (127mm) push-out is performed to aid the operator in accessing the paper. In some situations, it may be necessary to turn

this feature off. It is recommended that this feature be left on whenever possible. In the push-out screen, use the up and down arrow keys to toggle to the on or off status as desired, and press ENTER.

6.12.2.4 Accuracy Adjust

This parameter provides a means for adjusting the accuracy of the backgauge. To change the accuracy, send the backgauge to 2 inches (50.8mm) and cut some paper. Measure the paper, and type in what you actually measure. The computer will calculate the amount of error and will compensate.

6.12.2.5 Knife Count

The knife count parameter allows the operator to reset the knife alarm and the lube alarm. The knife alarm displays a message that notifies the operator to change the knife. The lube alarm displays a message that notifies the operator to have the machine lubricated. The lube alarm will also display the name and phone number of the Challenge dealer from which the machine was purchased. NOTE: The alarms do not prevent normal operation they are simply reminders.

There are three functions within the knife count parameter: Clear Count, Knife Alarm, and Clear Lube. Select the desired function and press ENTER. See the following descriptions for an explanation of each function.

Select **Clear count** to reset the knife counter when a knife change has been performed.

Select **Knife Alarm** to enter or change the knife stroke alarm value. When this value is reached, the display will alert you to change the knife and reset the knife counter. Knife alarm values for the Titan 200 are factory set at 2,500 cuts. However, you may want to change this value based on your specific machine applications. See 7.3 Knife Care Tips, page 37 for help in choosing a knife alarm value for your machine.

Select **Clear lube** to reset the lube alarm after performing the lubrication requirements as shown in 8.3 Oil and Grease, page 42. Note: The number of cuts needed to set off the alarm is programmed at the factory and cannot be changed.

6.12.2.6 Machine count

The number displayed is the total number of cuts made by the machine.

6.12.3 Diagnostic

The diagnostic area can be very helpful in locating a problem in the event of a machine malfunction. Use the up and down arrow keys to toggle to the desired selection, and press ENTER. See the following descriptions for an explanation of each.

5.000 in

DIAGNOSTIC
Error Code
Sensor Data
Clear Memory
Electric Clamp
Clamp Adjust

A) Maint C) Send
B) Job D) Exit

6.12.3.1 Error Code

The Error Code function simply recalls the last five error messages that were displayed. This can be very useful in cases when the malfunction cannot be reproduced in the presence of the service technician.

6.12.3.2 Sensor Data

The Sensor Data function provides a list of computer inputs and outputs (proximity switches, etc.) along with their status (0 for open, 1 for closed). This function allows a service technician to check the status of a switch without removing any covers. Cuts and backgauge movements are allowed in this screen so that the technician may observe the status of the inputs and outputs during machine operation.

6.12.3.3 Clear Memory

The Clear Memory function resets the memory to a known state. **All cut positions will be erased during this operation**.

6.12.3.4 Electric Clamp

This function turns the optional electric clamp pressure control on or off.

6.12.3.5 Clamp Adjust

This function allows for the adjustment of the electric clamp function.

6.12.4 Language

In the language screen, use the up and down arrow keys to toggle to the desired language, and press ENTER. All messages will be displayed in the selected language.

6.13 Job Mode

The Titan 200 can be programmed for up to 99 different jobs or channels. A job is used for making a sequence of cuts using the send (or cut) values of the job as the backgauge positions for each cut. Each job can hold up to 99 send values. If 2 channels are linked, up to 198 send values can be accessed from one job. When the job mode is entered, all previously programmed jobs will be displayed along with their name and lock status. Locked jobs will be indicated by an asterisk “*”. A plus “+” sign at the bottom of the screen indicates there are more jobs programmed than what are displayed. An example of a job mode screen display is shown below.

```
  >

   1> JOB 1
   2> TESTJOB
   5>
   6> BOBS JOB     *
   7> 8.5 X 11     *
   9>
  10>
+
  A) Lock          C) Erase
  B) Copy          D) Exit
```

6.13.1 Lock/Unlocking a Job

In the Job Mode screen, the soft-key “A” will display “Lock” or “Unlock” depending on the current status of the job. If a job is locked, an asterisk “*” will be displayed to the right of the job name. To change the lock status of a job, simply move the cursor to the desired job using the up and down arrow keys, and press the soft-key “A” (Lock/Unlock).

6.13.2 Copying a Job

First, select a job to copy by moving the cursor up or down to the desired job number and press the soft-key “B” (Copy). “Select Copy to #” will be displayed at the bottom of the screen. Enter a job number for the new job or move the cursor to an existing job and press ENTER. If the new job is locked, the copy will not be allowed. NOTE: if the new job is not locked, but contains data, the old data WILL BE LOST.

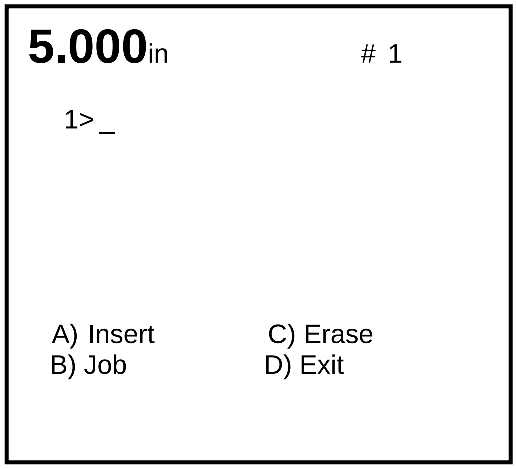
6.13.3 Erasing a Job

Select a job to erase by moving the cursor to the desired job. Press the soft-key “C” (Erase). “Clear channel #” will be displayed, followed by YES or NO. Use the up and down arrow keys to toggle to YES or NO. YES will erase the job, NO will leave the job unchanged. NOTE: locked jobs can be erased!

6.13.4 Creating a New Job

To create a new job, type in a number that is not already assigned to a job and press ENTER (entering a job number greater than 99 will create job #99). The cursor will move to the line corresponding to the number you typed in, prompting you for a job name. If no job name is desired,

simply press ENTER again to begin entering send values (see below). To name the job, press the right arrow key to move the cursor to the first character position. Enter a character of the alphabet by using the up and down arrow keys to toggle to the desired character. The numeric keys can be used to enter numbers directly into the job name. When the desired character is in place, use the right arrow key to move to the next character position. The job name can be up to 10 characters long. A letter can be removed from the job name by moving the cursor to the undesired character and pressing the CLEAR key. When finished, press ENTER to save the name and to begin entering send values. The screen should now look similar to the one shown next:



6.13.4.1 Entering Send Values

Now enter send values by using any of the following methods: 1) Type in the desired value and press ENTER, 2) Press ENTER at a blank line - this will enter the current position of the backgauge as a send value, or 3) Use the “Cut and Record” feature as described below.

When finished entering send values you may exit the current job by pressing soft-key “B” (Job) to go back to the job mode screen or soft-key “D” (Exit) to exit to send mode. Or you may use the current job for cutting by pressing the down arrow at the last line and following the instructions in the “Running a Job” section (page 30).

6.13.4.2 Cut and Record

To use this feature, send the backgauge to a desired position using the backgauge glide control or by using SEND, then make a cut. The current backgauge position will automatically be entered into the job as a send value. This can be very convenient for setting up a program when the actual cut positions are not known.

6.13.4.3 Channel Linking

If more than 99 cut values are needed, 2 channels can be linked together into one job providing up to 198 cut values. This is done automatically when a job is at 99 cuts and an attempt is made to add another value. At this point, a screen is displayed asking: do you want to link to the next channel? Use the up or down arrow key to select yes or no. If no is selected, the last cut will be discarded and the new value will be inserted. If yes is selected, the last cut will be pushed into the first value of the next channel, although it will be displayed as value 100 of the current channel. If the next channel is locked, linking will not be allowed. NOTE: If the next channel is not locked, but contains data, the old data WILL BE LOST. After 2 jobs have been linked, the linked job will be displayed as “^^^^^^^^^” and will be locked.

To unlink a job, use the up or down arrow key to point to the linked job name and press soft-key “C” (Erase).

When finished entering send values you may exit the current job by pressing soft-key “B” (Job) to go back to the job mode screen or soft-key “D” (Exit) to exit to send mode. Or you may use the current job for cutting by pressing the down arrow at the last line and following the instructions in the Running a Programmed Job section 6.13.6 below.

6.13.5 Editing an Existing Job

6.13.5.1 Editing the Job Name

The job name can be edited (or added if an existing job does not have a name) in the job mode screen. To edit the name, move the cursor down to the desired job number by pressing the down arrow key. Then press the right arrow key to move the cursor to the desired character position and edit the character by pressing the up or down arrow keys to toggle between characters of the alphabet. Numbers can be entered directly by using the number keys. Pressing CLEAR clears the current character. When finished, you may either go to the current job by pressing ENTER, or go to a different job, or exit job mode.

6.13.5.2 Editing Send Values

To edit send values of an existing job, start by opening the desired job from the job mode screen. A job is opened by one of two methods: pointing at the desired job with the cursor and pressing ENTER, or by entering the job number with the keypad and pressing ENTER. Once a job has been opened, the current job number will be displayed in the upper right corner. Note: If the job is locked, it cannot be edited.

Send values can now be edited by moving the cursor up or down to the desired send value and then typing over the existing value.

When finished editing the job, you may exit the current job by pressing soft-key “B” (Job) to go back to the job mode screen or soft-key “D” (Exit) to exit to send mode. Or you may use the job for cutting since it is already open.

6.13.5.3 Inserting Send Values

To insert a send value, press the soft-key “A” (Insert). This moves all send values down and provides a blank line after the current send value. If more than 99 send values are needed, the job can be linked (see Channel Linking under the Creating a New Job section on page 28).

6.13.5.4 Erasing Send Values

To erase a send value, press the soft-key “C” (Erase). This will remove the cut value currently being pointed to by the cursor. To backspace over the current send value without removing the line, press the left arrow key.

6.13.6 Running a Programmed Job

To use an existing job for cutting, you must first open it by using one of two methods: move the cursor to the desired job with the arrow keys and press ENTER, or enter the job number with the keypad and press ENTER. Once a job has been opened, the current job number will be displayed in the upper right corner. Now press SEND to move the backgauge to the first programmed position (or send value). Close the front guard and make a cut. Once the cut is made, the backgauge will automatically push out the paper (if “push-out” is enabled) and move to the next programmed

position. After the last cut in the job is made, the backgauge will move to the first cut position of the current job. Pressing SEND at any time during the job will send the backgauge to its next programmed position without making a cut. A plus "+" sign will be displayed at the bottom of the screen if more cuts remain in the current job.

6.13.7 Exiting a Job

To exit an open job, press the soft-key "B" (Job) to return to the job mode screen, or press the soft-key "D" (Exit) to exit to the send mode screen.

6.14 An Example Job

The following is an example of how to program a job, which will be used to make two cuts: one at 8.5" and one at 11".

1. Turn on the machine and press CLEAR to preset the backgauge. Press the soft-key "B" (Job) to go to job mode.

2. Type in a new job number and press ENTER. Note: It must be a number that does not correspond to an existing job. All existing jobs will be displayed on the screen (you may have to scroll through them to see them all). If you wish to replace an existing job with the new job, first erase the existing job by moving the cursor to it and press the soft-key "C" (Erase). Now type in the new number and press ENTER. In this example, job #'s 1, 2, 5, and 6 already exist. We will use job # 7 for our new job. Press "7" and ENTER.

3. The cursor will move down to the new job number. At this point, press the right arrow key once to move the cursor to the first character position. Now name the job "8.5 X 11". To do this, press "8" on the number key pad. Then press the decimal "." key and so on. To enter the spaces and the letter "X", use the up and down arrow keys to toggle through the alphabet and press the right arrow key to move to the next character position. When the last character has been typed in, the display should look similar to the one shown below:

```
>

   1> JOB 1
   2> TESTJOB
   5> BOBS JOB    *
   6>
   7> 8.5  X  11_


+
  A) Lock            C) Erase
  B) Copy            D) Exit
```

Now press ENTER to begin programming the job. The display should now look similar to the one shown next:

```
5.000in                 # 7

 1> _




A) Insert          C) Erase
B) Job             D) Exit
```

4. To enter the first send value of 8.5", simply type in 8.5 and press ENTER. The cursor will move to the second line. Now type 11 and press enter.

```
5.000in                 # 7

 1>   8.500
 2> 11.000
 3> _



A) Insert          C) Erase
B) Job             D) Exit
```

At this point, you could exit and save the job by pressing the soft-key "D" (Exit) to exit to send mode, or the soft-key "B" (Job) to exit back to the job mode screen. However, lets use this job to cut paper.

5. Press the down arrow key once. This will remove the blank line 3 and move the cursor to the first send value (8.5"). Now press SEND. This will move the backgauge to the 8.5" position. Place the paper to be cut against the backgauge, close the front guard, and press the cut button. Once the cut cycle is complete, the backgauge will push out the paper and move to the next send value (11"). Now position the paper again, close the guard, and make another cut. After the cut is made, the backgauge will push out the stock and return to the first cut position, ready to repeat the current job.

6. Now lets lock the current job so it cannot be edited. First, exit back to job mode by pressing soft-key "B" (Job). Now move the cursor down to the new job using the down arrow key. Now press the soft-key "A" (Lock) to lock the job. An asterisk will appear indicating the job has been locked.

7. To exit back to send mode, press the soft-key "D" (Exit).

6.15 Operating Tips

Carefully lay out each sheet before you start cutting. Find the best cut pattern to give you the most pieces out of the sheet. If the sheet will be folded, be sure grain of the paper is running in the same direction as the fold or you will get a rough edge on the fold.

If an accurate cut is necessary for close register work, you MUST have a sharp blade in the cutter. A dull blade will pull or draw the paper and cause uneven cutting. Increased clamp pressure will not eliminate draw caused by a dull knife.

The correct clamping pressure varies from paper to paper. The general rule is that you should have enough pressure to hold the paper securely but not so much that it marks the surface of the paper excessively. Excessive pressure causes pile distortion and inaccurate cuts.

Mark the gripper edge and the guide edge of printed paper and make sure the first cuts are with these guide edges against the backgauge.

Measure printed paper to check for shrinkage or expansion of the paper from humidity. You may have to disregard the printed cut lines and make your own.

When cutting business cards or narrow strips of paper, place lifts of equal height on opposite sides of the table to prevent wear of the clamp guides.

6.16 Note to Dealer

6.16.1 Entering the Dealer Name and Phone Number

To enter or change the dealer name and phone number that will be displayed when the lubrication alarm is displayed and when the upgrade screen is displayed, you must first enter the “Dealer Mode” screen. To do this, turn off the power and then simultaneously hold the left and right arrow keys while turning on the power. Continue to hold the arrow keys for a few seconds after the machine turns on. Now enter the desired dealer information by using the up and down arrow keys to toggle through the characters (similar to naming a job). Use the right arrow key to move to the next character and to move to the 2nd line. When finished, turn off the power.

7.0 Knife Installation/Changing

⚠ CAUTION Changing knives can be very dangerous unless safety precautions are observed and extreme care is taken when handling knives.

- Make sure knife lifters are properly installed, see instructions following.
- Keep handling of unprotected knives to an absolute minimum.
- Clear off cutter table before removing knife.
- Have scabbard on cutter table and insert knife immediately.
- Warn people of any unprotected knife.
- Knife changing is a **ONE PERSON OPERATION**. Having more than one person trying to change knives invites accidents.

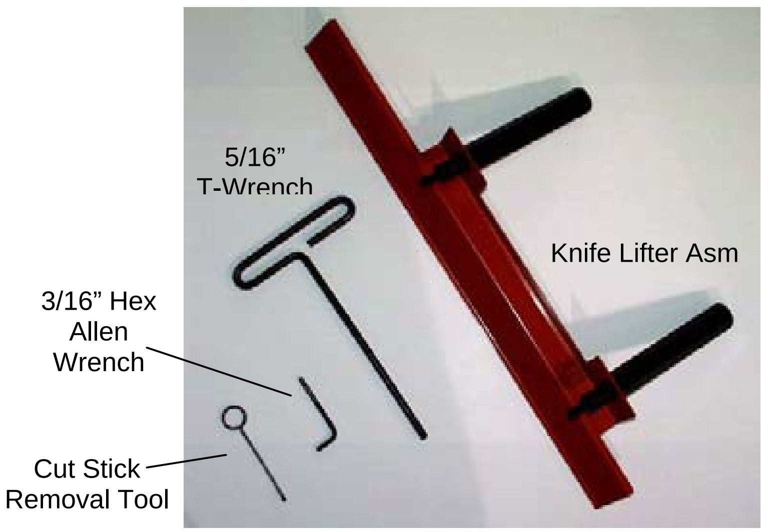


Figure 21 – Knife Changing Equipment

The knife changing equipment shown in Figure 21 is included in the cutter tool kit. The following instructions show how to remove and install a new or re-sharpened knife. Read through these instructions AT LEAST ONCE before attempting to actually change or install any blades.

7.1 Knife Removal

1. Make sure the knife and clamp are in the "up" position. Turn the main power switch to the "OFF" position and disconnect the machine power cord to prevent accidental power-up while servicing the cutter.

2. Back off the knife adjusting screws on top of the knife bar several turns (Figure 22). A new knife will cut deeper than one that has been ground several times. Failure to back off the screws could damage the knife and/or the cutting stick.

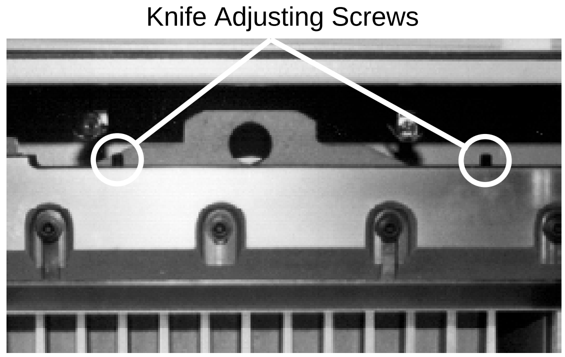


Figure 22

3. Remove the knife bolts from the two slotted knife bar holes and replace with the knife lifter assembly (Figure 23). Tighten the lifters to hold the knife in place, and then remove the remaining two knife bolts.



Figure 23

4. Clear the table surfaces and place the empty knife scabbard on the table. Remove the scabbard's knife retaining screws.

5. Grasp the knife lifters firmly and, at the same time, turn them counterclockwise to release the knife from the knife bar (Figure 24). Lower the left end first, then lower the right end as you shift the knife sideways to the left. Bring the right end of the knife around the knife bar guide frame. Maneuver the right end into the space between the guide frame and the shroud as the left end is brought clear of the left guide frame. Move the knife to the right then bring the knife out of the cutter, left end first. Put the blade in the scabbard immediately and secure the knife retainer screws.



Figure 24

7.2 Knife Installation

⚠ CAUTION Knives are heavy and always very sharp! Be sure to keep the edge away from your body and keep other people out of the area while handling the blade. Severe lacerations or dismemberment could result from careless handling procedures.

1. Make sure the knife and clamp are in the up position. If they are not, turn on the power using the red and yellow main power switch, close the front guard (if equipped), and press the CLEAR button. This will preset the backgauge and send the knife and clamp up.

2. Turn off the machine and unplug the power cord.

3. Pull out the cutting stick using the cut stick removal tool and turn it to a new surface. If the cutting stick is not level or flush with the table, 1/2" strips of paper can be placed in the table slot under the cutting stick to shim it.

4. Remove the left retainer screw from the new blade and screw the knife lifter assembly into the new blade. Screw the lifters all the way in and then back them out a 3/4 turn).

5. Remove the other scabbard retainer screw.

6. Double check to make sure the knife adjusting screws have been backed out all the way (step #2, Knife removal). Lift the blade and insert it into the knife bar slot. Guide the blade, right edge first, into the space between the shroud and the knife bar guide frames. Tip to clear the table side guides, then move the left end of the blade into the knife bar slot dropping the left end as the right end is brought around the right knife bar guide frame and up into the knife bar slot. Raise the knife into the knife bar slot as high as it will go and tighten the lifters.

NOTE: If the blade will not go in, either the lifters are screwed into the blade too far, or the end of the blade is hitting the cylinder bracket at the right end of the knife slot. In this case, drop the left end when inserting the knife.

7. Insert the knife bolts with washers and snug to hold the knife, but don't tighten them yet.

8. Remove the knife lifter assembly and replace with bolts and washers.

9. Place a few sheets of paper over the cut stick, covering the stick end-to-end.

10. Plug in the power cord and turn the power on.

11. Go to the MAINTENANCE screen and choose KNIFE ADJUST. Choose KNIFE DOWN, close the guard (if equipped), and press the cut buttons to send the knife to the down position (for more details on how to do this, see page 25, Knife Adjustment).

12. Turn the power off and disconnect the machine power cord.

13. Turn the knife adjusters down evenly, a little at a time, until the knife cuts through the bottom sheet of paper the entire length of the cutting stick (Figure 25). Turning the screws down evenly prevents uneven wear on the knife and cutting stick.

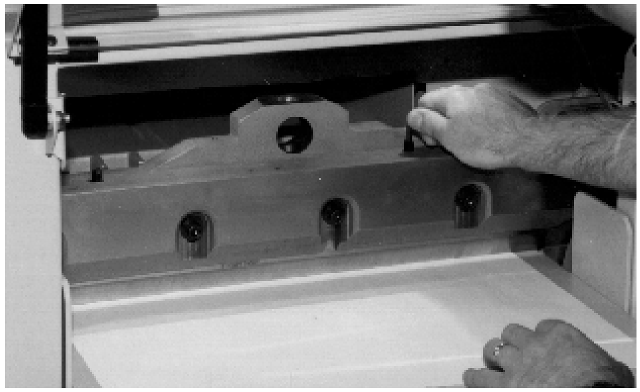


Figure 25

14. Plug in the power cord and turn the power on.

15. Close the front guard (if equipped) and press CLEAR. This will raise the knife and clamp to the up position.

16. Turn the power off and disconnect the machine power cord.

17. Tighten all knife bolts securely.

18. Plug in the power cord and turn the power on. Make a test cut through a full lift of paper and make minor adjustments if necessary by repeating steps 9 through 17. **NOTE:** If the knife ends cut but the middle doesn't, you could have dips or uneven spots in the knife and/or cutting stick. These can be eliminated by placing 1/2" strips of paper in the table slot beneath the cutting stick to shim it.

19. Send the dull knife to a knife grinder. Do not attempt to sharpen your own knives! See the Knife Care Tips Section below to determine the knife bevel angle.

7.3 Knife Care Tips

⚠ CAUTION **! KNIFE SAFETY** ! Knives are **DANGEROUS!!!** They are heavy and very sharp, even after use. Keep the edge away from your body and keep the area clear of others when handling knives. Never touch the cutting edge! To prevent personal injury and damage to the knife, always keep knives in their holders with screws tightened. You are aware of the dangers, but others may not be. Never attempt to hone, polish, or service the knife in any way. Failure to follow safety procedures may result in severe lacerations or dismemberment.

7.3.1 Knife Blade Life

Knife blade life, or the time between sharpenings, can be affected by many factors. One important factor is the type of paper being cut. Abrasive paper, such as recycled paper, soft paper such as newsprint paper, and bound books can all significantly shorten knife blade life. Also, if the knife depth is set too deep, the knife will cut too deep into the cutting stick and can dull the knife blade.

A knife can last between 2,000 and 5,000 cuts before it needs to be sharpened. Cutting soft paper (such as newsprint paper) or paper with high post-consumer recycled content can cause the knife to need sharpening after only 2,000 to 3,000 cuts. Cutting pure paper, such as bond paper with no recycled content, or hard paper can allow the knife to be used for as many as 5,000 cuts before it needs to be sharpened. In all cases, the operator should continually check the quality of the cut to

determine when the knife blade needs to be sharpened. Some characteristics that indicate a blade needs sharpening are:

- The knife hesitates or stalls while making a cut.
- The sheets are not all cut to the same length (usually the top few sheets are longer than the rest of the sheets - this is sometimes called “draw”).
- Cut marks appear on the cut face of the paper.
- The profile of the cut (side view) is not perpendicular to the table.
- The cut does not appear straight when viewed from the top.
- The knife makes a “rougher” sound as it passes through paper.
- Nicks are visible on the cutting edge of the knife.

7.3.2 Cutting Stick

A worn cutting stick can affect the cut quality of the bottom sheets. When this happens, the cut stick can be rotated. Usually, the stick should be rotated one or two times between knife sharpenings.

There are 8 possible cut stick positions. The stick can be rotated 4 times, and then turned end to end, and rotated 4 times again.

7.3.3 Bevel Angle

Challenge recommends that bevel angles for the Titan 200 knives be in the range of 21° to 23°. In general, a 21° bevel angle will provide better cut quality when cutting soft paper (such as newsprint), recycled paper, or bound books. However, 21° angle knives can become dull sooner than 23° knives, which results in shorter knife blade life. A knife with a 23° bevel angle, on the other hand, will not dull as easily, and can provide satisfactory results when cutting most types of paper. Knives shipped with the Titan 200 from the factory have a bevel angle of 23°.

7.3.4 Helpful Suggestions

- If your establishment is large enough to purchase more than one set of knives, have one set beveled at 21° and the other at 23°. Note: A set consists of 3 knives: one in the machine, one as a back up, and one at the grinder.
- If the machine seems to strain but the cut quality is still good, reduce the pile height. You may also carefully apply glycerin to the bevel when cutting hard, coated paper. Tie a cloth to the end of a stick; dip the stick in glycerin, and apply. Never apply by hand! In lieu of glycerin you may lightly rub white bar soap along the bevel. Lubrication will prolong the life of your machine and reduce maintenance.

7.3.5 Knife Care

- To prevent corrosion, knives are coated with light oil. It should be REMOVED WITH CARE.
- While removing or installing a knife, be careful not to allow the edge to bump against the machine. Nicks will result.

- If a knife bolt is damaged, replace it.
- Always keep knife bolts securely tightened.
- Always use the heavy duty knife bolt washers provided by Challenge. Failure to do so could result in scratching or marring of the clamp face.
- Store knives in a dry environment to prevent corrosion.
- Never attempt to service a knife in any way.

8.0 Maintenance Guide

⚠ NOTICE ⚠

The instructions on the following pages are for the use of trained service personnel only!

Attempting to perform repair and replacement procedures without proper training may cause machine damage or operator injury!

PARTS CUSTOMERS: Parts with the express understanding that they are to replace parts found missing or no longer serviceable on equipment designed and/or manufactured at Challenge. The Challenge Machinery Company assumes no liability for any modification or alteration to any Challenge products, and any such modification or alteration to any Challenge product is not authorized by The Challenge Machinery Company. Any modification or alteration of any Challenge product will void any remaining warranty.

8.1 Routine Maintenance

⚠ CAUTION DISCONNECT POWER before making any adjustments or lubricating. See page 5, SAFETY PRECAUTIONS, for Power Lockout Procedure.

This machine should be placed on a regular maintenance schedule. A clean, lubricated machine will run longer, smoother, cut more accurately, with less downtime and fewer costly repairs. Schedule lubrication both early in the day and early in the week. This allows the lubricants to work into the machine. Lubrication at the end of the day or week allows the lubricants to run off without any benefit to the machine. The following guidelines will help you set up a regular maintenance schedule:

8.1.1 Weekly

Clean — Clean off old, dirty excess grease. Remove the lower front panel cover and clean accumulated dust off valves, hoses and connections. Built-up dust increases operating temperatures, which causes premature wear to all hydraulic components.

Hardware — Remove the lower front panel cover, rear panel cover, and top hood to check all nuts and bolts for tightness. Loose hardware is the cause of most component wear and in the electrical area could cause short circuits and/or shock.

Hydraulic Fluid — Low fluid level causes excessive heat and wear on the system. Check the fluid level as described in section 8.2 below.

Oil and Grease — See section 8.3

8.1.2 Monthly

Backgauge Squaring — See section 8.4.3

8.1.3 Yearly

Change Hydraulic Fluid — See section 8.2

8.2 Checking/Changing the Hydraulic Fluid

The hydraulic fluid level should be checked weekly. To check, remove the lower rear cover and unscrew the cap on top of the tank (Figure 26).

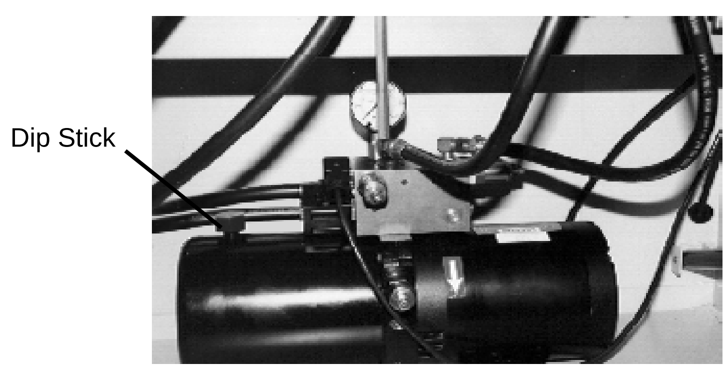


Figure 26

Fluid level should be at 1/8" from the end of the dip stick (check with dip stick cap screwed in). Add fluid if necessary but avoid overfilling as this could cause leakage when hot. Replace the rear panel when finished.

The hydraulic fluid should be changed **AT LEAST ONCE-A-YEAR** or after every 1,000 hours of operation. **NOTE**: Failure to change oil when needed can damage seals in the cylinders, pump, and valves.

Empty the hydraulic tank and refill with 1 gallon of International Standards Organization Viscosity Grade 100 (ISO VG 100) rust, oxidation, and foam inhibiting hydraulic fluid (Challenge part no.: **S-1991**).

NOTE: NEVER use automatic transmission fluid or brake fluid as a substitute for the correct hydraulic fluid. A table of various manufacturers and their equivalents is listed below.

8.2.1 Recommended Hydraulic Oils

⚠ CAUTION Use one of the recommended oils or an ISO VG 100 Hydraulic Fluid equivalent only. Oils other than the recommended type will cause seals and O-rings to deteriorate. Unsafe operating conditions will result.

Oil Name	Distributor
Rykon No. 100	AMOCO
Duro AW Oil 465	Arco
AW Machine Oil 100	Chevron
Pacemaker XD No. 100	Citgo
Super Hydraulic 100	Conoco
Nuto H-100	Exxon
Harmony 100 AW	Gulf
HO 2A Hydraulic Oil	Lubriplate
DTE No. 18	Mobil
Pennzoil AW 100	Pennzoil
Magnus A Oil 215	Phillips
Tellus 100	Shell
Energol HLP 100	Sohio
Industron 100	Std. Oil Indiana/Boron
Sunvis 851 WR	Sun Oil Co.
Rando HD 100	Texaco
Unax AW 100	Union Oil Co.

8.3 Oil and Grease

Turn the power off and disconnect the power cord. Open the front guard (if equipped) and open the top hood for access. Parts requiring oiling are marked with red paint. See figures Figure 27 through Figure 34 starting on page 43 for oil and grease locations. Figure 27 through Figure 29 require the knife and clamp be in the up position. Figure 30 through Figure 34 require the knife and clamp be down. Wipe off any old or excess grease. Use any brand-name type of grease or light oil to lubricate. It may be necessary to use the supplied grease brush to access some locations. Note: the leadscrew may be lubricated with grease or oil. Oil has a tendency to run off and must be lubricated more frequently; grease tends to collect paper dust and must be cleaned off periodically.

Grease   Oil

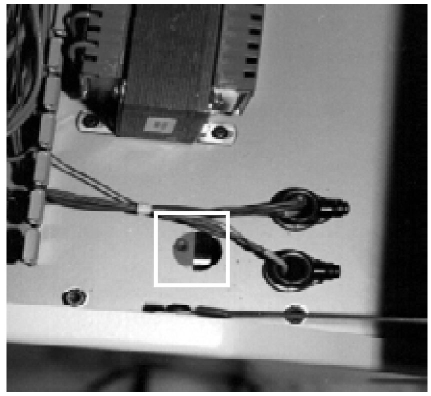


Figure 27 – Knife Bar Link – L.H. Side, Upper

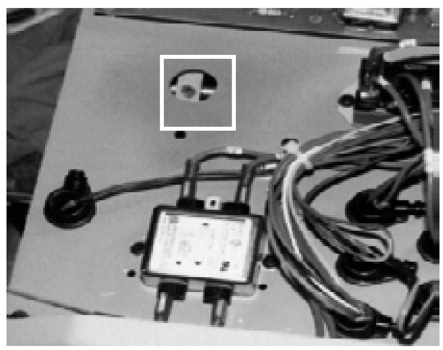


Figure 28 – Knife Bar Link – R.H. Side, Upper

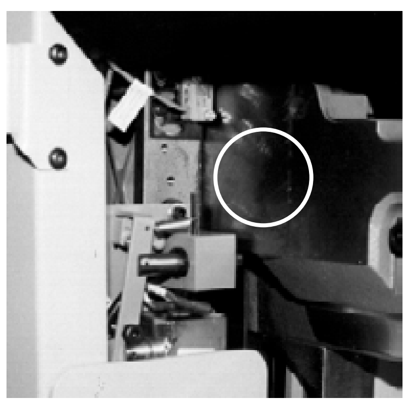


Figure 29 – Knife Bar

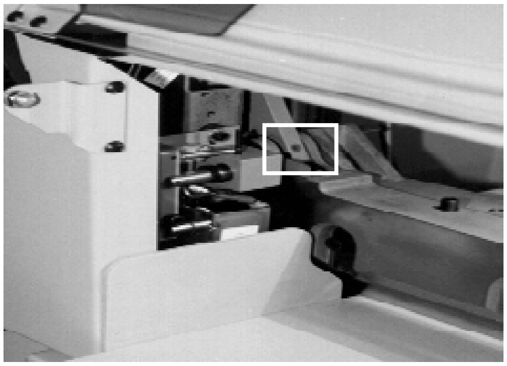


Figure 30 – Knife Bar Link – L.H. Side, Lower

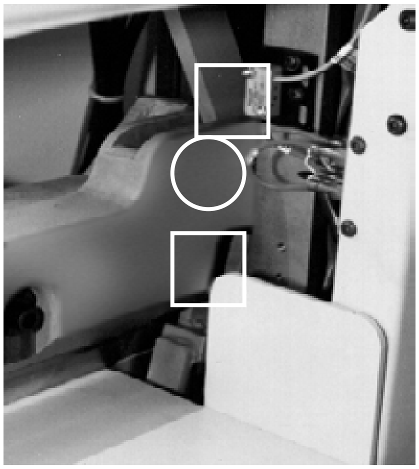


Figure 31 – Knife Bar Link – R.S., Lower

Knife Bar
Knife Cylinder Bracket, Upper

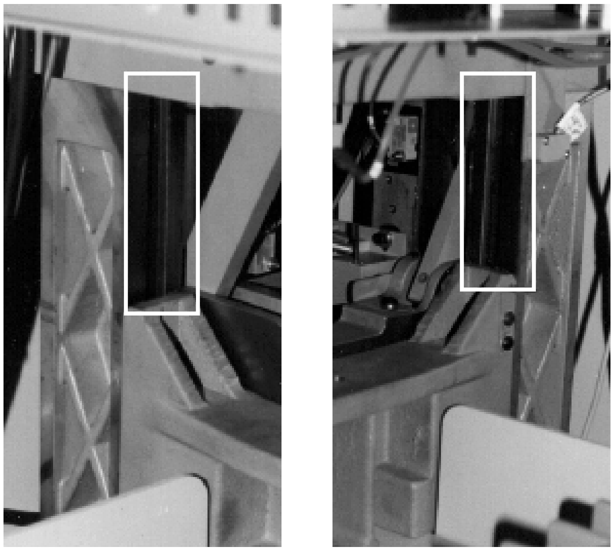


Figure 32 & Figure 33 –Clamp Guides

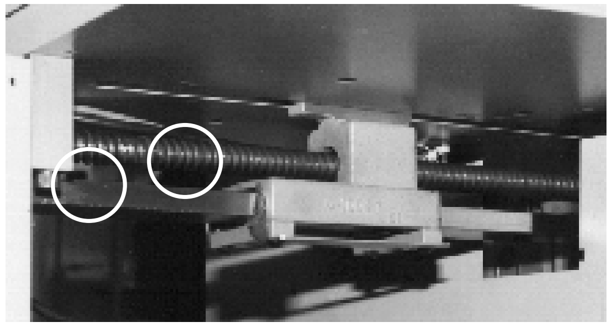


Figure 34 – Leadscrew and Backgauge Guide

8.4 Adjustments

CAUTION Several of the following tests require the machine to be operational for checking and adjusting. Be very careful that tools and other people are clear of moving parts and that the cutter is not accidentally operated while adjustments are being made. Whenever working on the machine, disconnect the power and lock it out (see SAFETY PRECAUTIONS, page 5) unless the directions specifically require the machine to be powered.

8.4.1 Electric Eye Alignment

If your machine is equipped with electric eyes, the alignment can be checked as follows:

Turn on the power switch, and make sure there are no obstructions between the electric eyes.

- If the green and yellow lights on the electric eyes are on solid, then the eyes are in proper alignment.
- If the red light is on and the yellow light is off or flashing, then the eyes either blocked or not aligned properly.

If alignment is necessary, loosen the screws that attach the electric eye brackets to the table extensions. Adjust until the green and yellow lights are on solid as described above and tighten screws.

8.4.2 Backgauge Gib Adjustments

If the backgauge does not stay squared or jumps up and down when jogging paper against it, the backgauge gib screws are probably loose or worn.

To Adjust:

1. Send the backgauge near the rear of the table.
2. Turn off the power and disconnect the power cord.
3. Remove the leadscrew cover under the table.
4. Loosen the two side gib screws and the bottom nylon guide screws (Figure 35, next page).

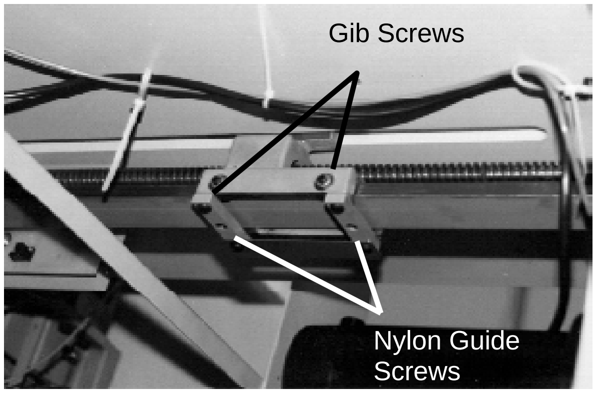


Figure 35

5. Tighten the bottom, nylon guide screws until they just touch the guide. Do not overtighten or they could cause the backgauge to bind.

6. Similarly, turn the side gib screws in until they just touch the guide. Lock in position with the jam nuts.

7. Run the backgauge back and forth the length of the table using the backgauge glide control. Check for any binding. Readjust if necessary.

NOTE: The screws should be tightened to hold the backgauge square against the guide rail. Excessive tightening will cause the backgauge to bind and cause premature wear of all components.

8.4.3 Squaring the Backgauge

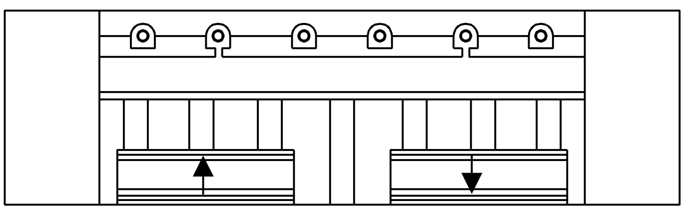


Figure 36

To test if the backgauge is square, place a small lift of paper against the left side of the backgauge (but not against the side guide) and make a cut. Now, leave the backgauge in the same position, flip the lift over and push it against the right side of the backgauge (but not against the side guide). Make another cut to see if any of the paper will trim off. Run two checks, one starting on the left and moving to the right; the other, moving from the right to the left. If paper is trimmed in either sequence, the backgauge is out of square.

1. Make sure the backgauge gibs are set properly (see section 8.4.2).

   NOTE: Gib adjustments are not necessary on initial machine set-up as gibs have been adjusted at the factory.

2. Remove the rear plexiglass table cover.

3. Loosen the jam nuts on the backgauge adjusting screws (Figure 37).

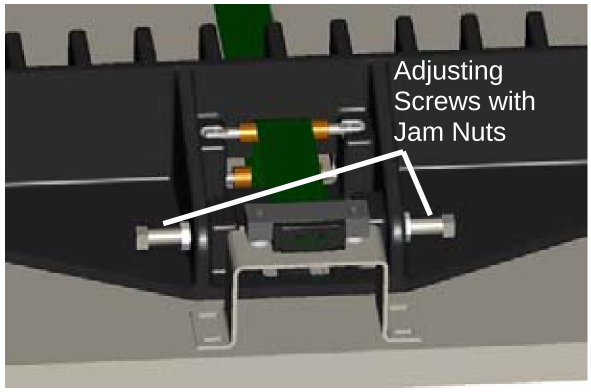


Figure 37

4. Back off the adjusting screw on the side that the trim occurred and tighten the other.

5. With the squaring screws tight, make another test. Continue to adjust and test until no trim occurs when testing either sequence.

6. Replace the rear plexiglass table cover.

Note: Once the backgauge is square, restore power to the machine and check the backgauge accuracy (see section 6.12.2.4 on page 26) to make sure it is accurate.

8.4.4 Clamp Pressure Adjustment

Adjust the clamp pressure reducer (Figure 38) to the desired setting. It is factory preset at 800 psi. Read the gauge with the clamp down and as the knife begins to move down. Loosen the jam nut on the valve stem. With an allen wrench, turn the stem clockwise to increase pressure and counter-clockwise to decrease pressure.

Note: When cutting pressure sensitive paper, you may want to reduce the clamping pressure **(400 psi minimum)** to prevent marking the paper.

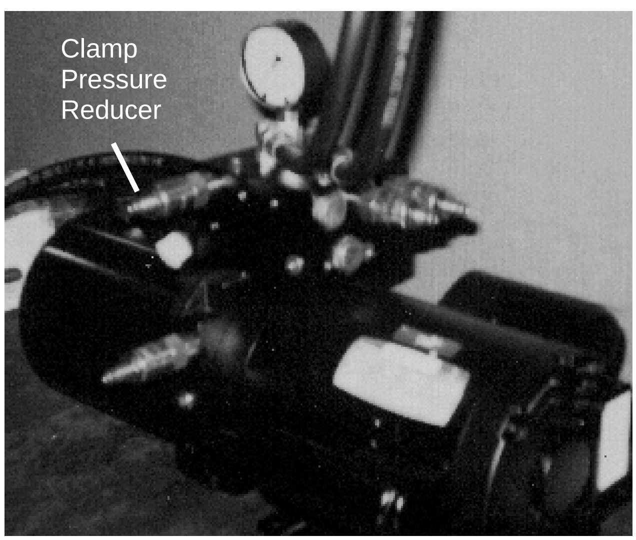


Figure 38

⚠ CAUTION DO NOT set the clamp pressure below 400 psi. Severe lacerations or dismemberment could result! The knife and clamp system loses sequence at settings below 400 psi and the knife could come down before the clamp.

8.4.4.1 Optional Electronic Clamp Pressure Control Adjustment

The electronic clamping control option allows the convenience of changing the clamp pressure at the control console. The pressure is controlled by use of the up and down arrow keys, 0 being the lowest - 15 the highest; and is indicated in the upper right hand corner of the display.

Note: To turn the electronic clamp control option on or off, enter the Maintenance Mode and choose Diagnostic. Then choose Electric Clamp and select “ON” or “OFF”.

To adjust the actual clamp pressure maximum and minimum, first make sure the Electric Clamp option is set to “ON” (see above paragraph). Enter the Maintenance Mode and choose Diagnostic. Then choose Clamp Adjust, and the following screen should be displayed:

```
5.000
 Set Maximum
  ≥

  Press  /\  to Increase

  Press  \/  to Decrease



 A) Main          C) Send
 B) Job           D) Exit
```

Now perform a cut cycle. After the clamp has contacted the table and while the knife bar is coming down, read the pressure on the right hand pressure gauge. It should read 800 psi. If it does not, correct by using the up and down arrow keys. When finished, press soft-key “D” to exit and go to the minimum pressure set up screen shown below:

```
5.000
 Set Minumum
  ≥

  Press  /\  to Increase

  Press  \/  to Decrease



 A) Main          C) Send
 B) Job           D) Exit
```

Perform a cut cycle. After the clamp has contacted the table and while the knife bar is coming down, read the pressure on the right hand pressure gauge. It should read 400 p.s.i. If it does not, correct by using the up and down arrow keys. When finished, press soft-key “C” to return to Send Mode, or soft-key “D” to return to Diagnostics.

8.5 Cleaning

Before cleaning inside machine, turn off and lockout power, page 5.

Hydraulics

1. The vent fan should be wiped off weekly to maintain maximum cooling of the hydraulic system.

2. The hydraulic manifold, fittings, and hoses should be wiped off weekly to maintain maximum cooling. Remove then replace panels as necessary.

Table

1. The front table should be wiped down periodically. Use a non-abrasive cleaner along with a protective wax.

2. The rear table cover and front guard (if equipped) may be cleaned with glass cleaner or a mild water based detergent. Some petroleum-based solvents may damage the plexiglass.

Console

1. The console should be cleaned with a mild water based detergent applied to a damp cloth or paper towel. Petroleum based solvents **will** damage the console.

Machine Exterior

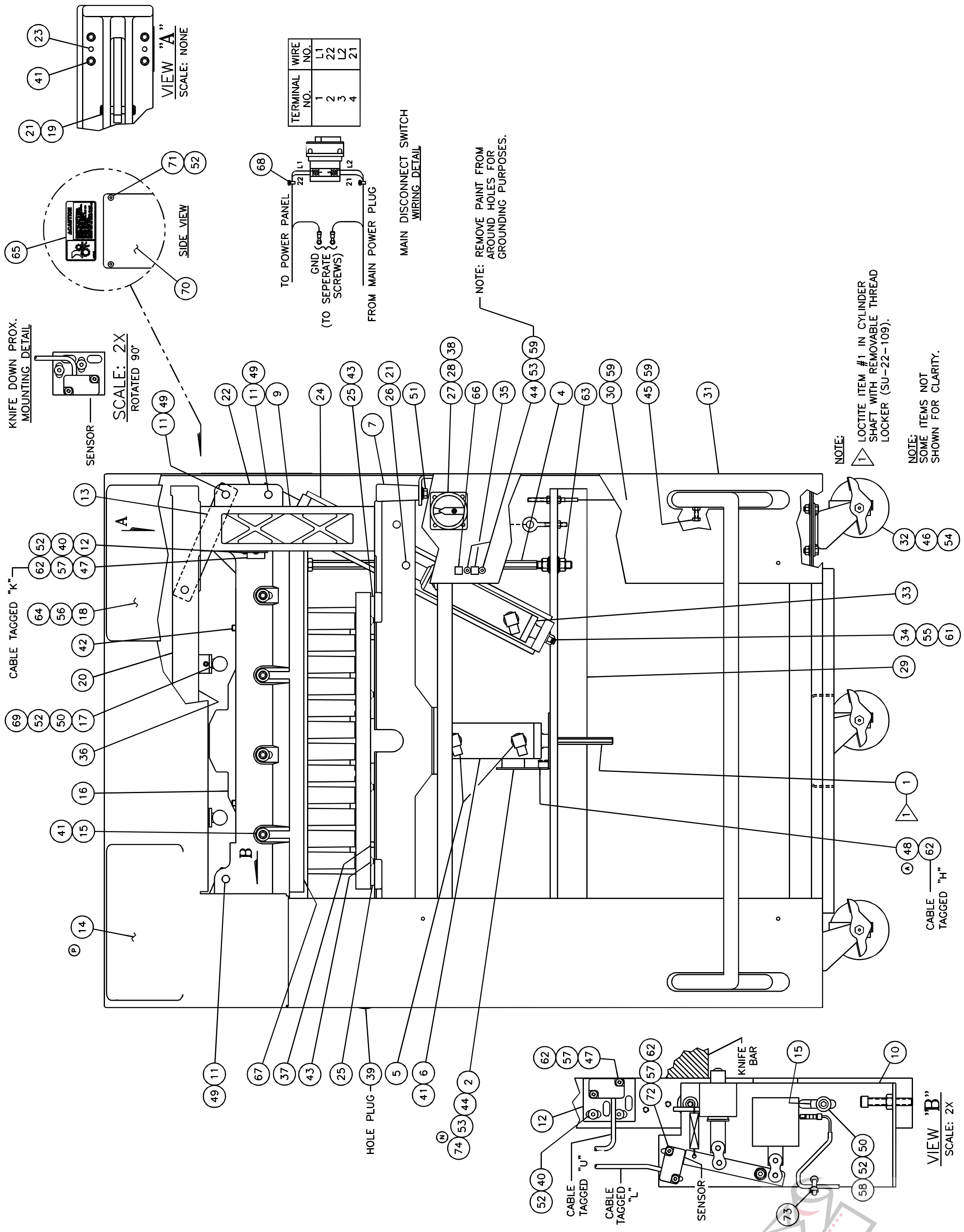
1. The machine's exterior should be cleaned with a non-abrasive water based detergent applied to a damp cloth.

2. Always be careful when cleaning around safety warning labels. Use limited amounts of cleaners in those areas.

9.0 Schematics & Parts Lists

9.1 Main Assembly – Front View

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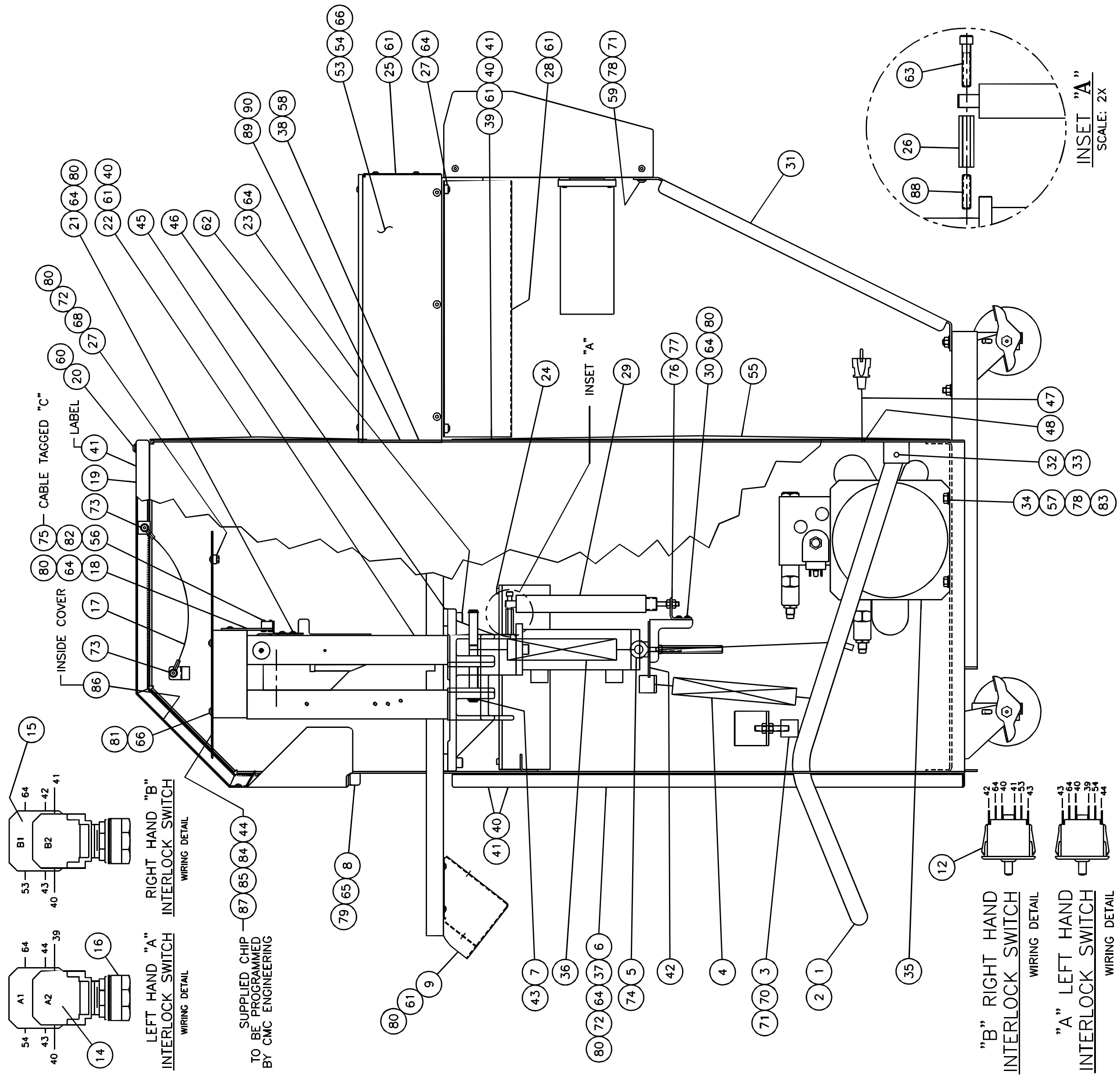
Main Assembly – Front View – 43000 Sht. 1 of 4, Rev. H

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	43074	ROD – CLAMP CYLINDER	1
2	41033	BRACKET – HYD. UP PROX.	1
3			
4	10082	CLAMP ROD ASM	2
5	H-237-4	ELBOW – 90° PIPE TO TUBE	4
6	H-211-1	CYLINDER – CLAMP	1
7	10001-1	BASE	1
8			
9	10002-2	GUIDE – FRONT	2
10	41120-3	KNIFE LATCH ASSEMBLY	1
11	10010	PIN	3
12	41008	BRACKET – KNIFE DOWN PROX.	2
13	10008	LINK – KNIFE BAR	2
14	43003-1	WARNING PANEL	1
15	8815	WASHER – KNIFE BOLT	6
16	10004-3	CLAMP	1
17	EE-2779	LINE LIGHT ASSEMBLY	2
18	EE-3035	CONSOLE ASM. – CONTROL	1
19	10009	PIN – KNIFE LINK	2
20	10007-2	ARCH	1
21	S-1193-50	RETAINING RING – 1/2	6
22	10003	KNIFEBAR	1
23	H-21S-250-1000	PIN – 1/4 x 1" ROLL	8
24	AA-10018	BRACKET – CYLINDER	1
25	43056	SPACER – TABLE	2
26	10064	PIN – KNIFE CYLINDER	1
27	E-2465	SWITCH FACE – MAIN DISCONNECT	1
28	E-2464-1	SWITCH – MAIN DISCONNECT	1
29	43030	PULLDOWN – CLAMP	1
30	43077	CABLE – FOOT PEDAL	2
31	43008-1	STAND ASSEMBLY	1
32	41014	CASTER – SWIVEL W/ BRAKE	3
33	H-210-1	CYLINDER – KNIFE	1
34	H-6631-308	PIN – 3/32 x 1" COTTER	1
35	S-1781-42	LABEL – GROUND SYMBOL	1
36	S-2015	TAPE – REFLECTIVE ALUMINUM	13"
37	H-6633-718	PIN – #7 TAPER	2

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
38	E-2796	TERMINAL PROTECTION – MAIN DISCONNECT SW.	2
39	E-2196	PLUG – HOLE	2
40	H-6910-102404	SCREW – #10-24 x 1/2 BUTTON HEAD	4
41	H-6918-608	SCREW – 3/8-16 x 1" SOCKET HEAD	22
42	H-6938-632	SCREW – 3/8-16 x 2" CUP POINT SET	2
43	H-6909-506	SCREW – 5/16-18 x 3/4 FLAT HEAD	4
44	H-6910-403	SCREW – 1/4-20 x 3/8 BUTTON HEAD	4
45	H-6913-406	SCREW – 1/4-20 x 3/4 HEX HEAD	2
46	H-6913-508	SCREW – 5/16-18 x 1" HEX HEAD	12
47	H-6922-44012	SCREW – #4-40 x 3/4 FLAT HEAD	4
48	H-6922-44010	SCREW – #4-40 X 5/8 FLAT HEAD	2
49	H-6938-102408	SCREW – #10-24 x 1/2 CUP POINT SET	3
50	H-6918-102406	SCREW – #10-24 x 3/4 SOCKET HEAD	6
51	H-6894-606	SCREW – 3/8-16 x 3/4 WHIZ LOCK	4
52	H-7324-#10	WASHER – #10 INTERNAL TOOTH	14
53	H-7324-8	WASHER – 1/4 INTERNAL TOOTH	4
54	H-7327-10	WASHER – 5/16 MEDIUM LOCK	12
55	H-7327-12	WASHER – 3/8 MEDIUM LOCK	1
56	H-7324-#6	WASHER – #6 INTERNAL TOOTH	4
57	H-7324 #4	WASHER – #4 INTERNAL TOOTH	6
58	H-7321-#10	WASHER – #10 PLAIN	2
59	H-6423-4	NUT – 1/4-20 HEX (KEP STYLE)	8
60	H-6423-5	NUT – 5/16-18 HEX (KEP STYLE)	12
61	H-6410-6	NUT – 3/8-16 SLOTTED	1
62	H-6423-#4	NUT – #4-40 HEX (KEP STYLE)	8
63	H-6414-8	NUT – 1/2-13 WHIZ LOCK	4
64	H-6423-#6	NUT – #6-32 HEX (KEP STYLE)	4
65	S-1781-16	LABEL – CAUTION	1
66	S-1781-45	LABEL – "PE" PROTECTED EARTH	1
67	A-10034	KNIFE	1
68	S-1694	TIE WRAP – WIRE	2
69	E-967-1	BULB – LINE LIGHT	REF.
70	43080	COVER – KNIFEBAR ACCESS	1
71	H-6910-102404	SCREW– #10-24 X 1/2 BUTTON HD.	4
72	H-6923-44012	SCREW – #4-40 x 3/4 RD HEAD	2
73	S-1694	TYRAP	–
74	H-7321-4	WASHER – 1/4 PLAIN	2

9.2 Main Assembly – Right Side View

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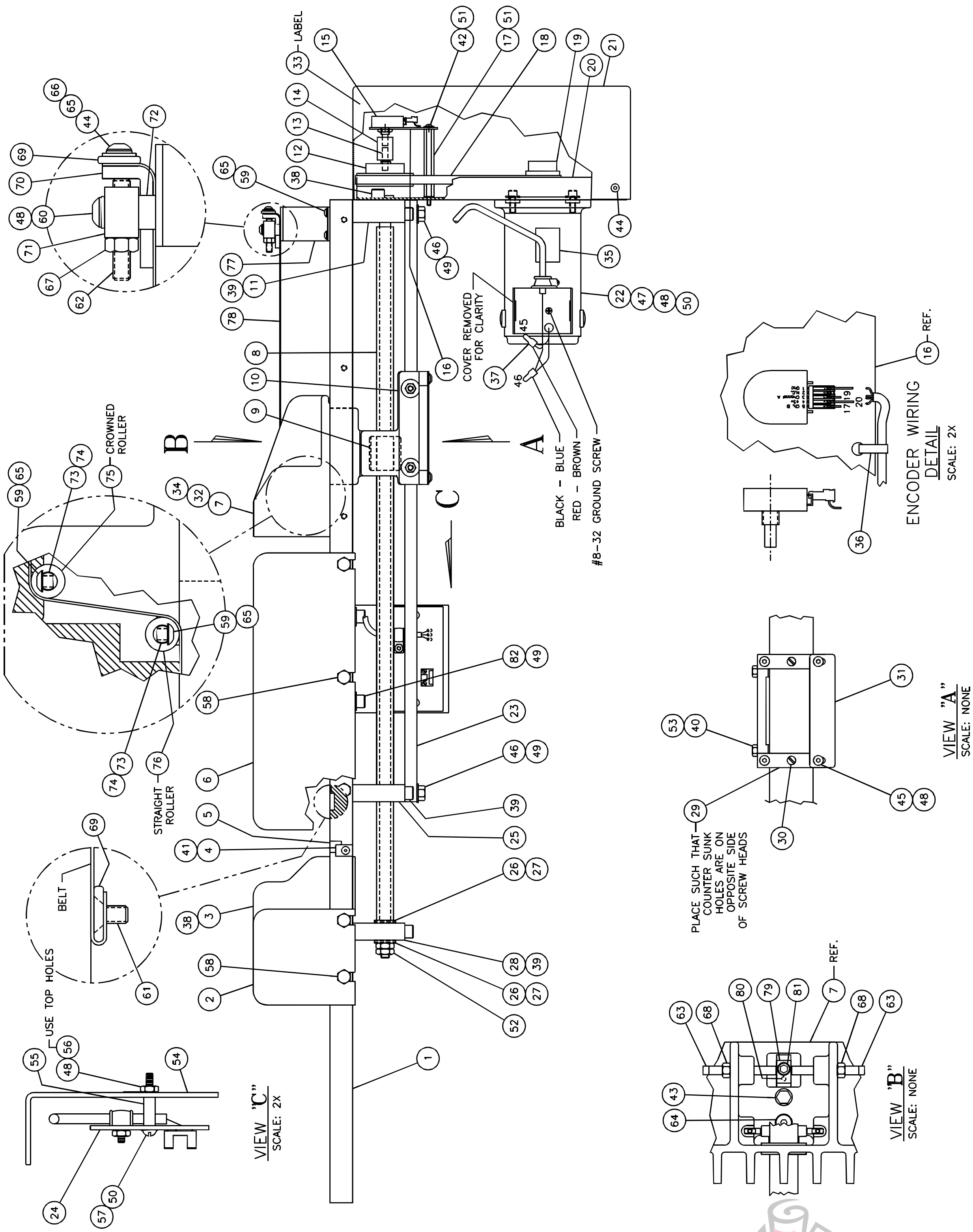
Main Assembly – Right Side View – 43000 Sht. 2 of 4, Rev. N

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	43022	PEDAL – FOOT	1
2	43021	TAPE – ABRASIVE	20"
3	40016-3	MOUNT – VIBRATION	2
4	47136-4	SPRING – PEDAL RETURN	2
5	S-1884	EYEBOLT – 1/4	2
6	43043	COVER – FRONT STAND	1
7	S-1193-50	RETAINING RING – 1/2 EXTERNAL	4
8	41007	HINGE	2
9	EE-2851-3	SWITCH ASSEMBLY – CUT	2
10			
11			
12	E-2457-6	SWITCH – COVER INTERLOCK	2
13			
14	E-1839-9	CONTACT BLOCK – SWITCH, (1) N.O.	REF
15	E-1839-10	CONTACT BLOCK – SWITCH, (2) N.O.	REF
16	E-2074	SWITCH BODY WITH BUTTON	REF
17	43040	CABLE – TOP COVER	2
18	43033	BRACKET – CLAMP UP PROX.	1
19	43007-1	COVER – TOP	1
20	H-7321-4	WASHER – 1/4 DIA. SAE PLAIN	2
21	43034	ACTUATOR – CLAMP UP PROX.	1
22	43041	COVER – REAR STAND (TOP)	1
23	43049	COVER – REAR TABLE	1
24	S-1694-1	CABLE TIE	2
25	43050	COVER – TABLE BACKGAUGE	1
26	E-1152-68	STAND OFF 1-1/2"	1
27	S-1694-2	CABLE TIE – #10	4
28	43042	COVER – LEADSCREW	1
29	43073	DAMPER ASSEMBLY	1
30	43061	BRACKET – CLAMP DAMPER	1
31	43035	SUPPORT – TABLE	1
32	43023	PIN – FOOT PEDAL	2
33	43024	HAIRPIN COTTER	2
34	A-10042	NUT	4
35	H-477-2	HYDRAULIC POWER UNIT – 208/230 V 50 HZ	1
	H-477-1	HYDRAULIC POWER UNIT – 208/230 V 60 HZ	
36	47136-3	SPRING – CLAMP RETURN	2
37	E-1152-61	STANDOFF – 3/4	4
38	41130	SPECIFICATION PLATE	1
39	43065	COVER – REAR MACHINE	2
40	S-1781-16	LABEL – CRUSH CAUTION	3
41	S-1781-11	LABEL – SHOCK CAUTION	3
42	43076	ACTUATOR – HYDRAULIC UP PROX.	1
43	47086	PIN – BELLCRANK	2
44	EE-2765-1	POWER PANEL ASSEMBLY	1
45	10002-3	GUIDE – REAR CLAMP	2
46	20075-9	SPACER	4
47	EE-2778	POWER CORD ASSEMBLY – 230 VOLT 60 HZ.	1
	EE-2778-1	POWER CORD ASSEMBLY – 50 HZ.	
	EE-2778-2	POWER CORD ASSEMBLY – 120 VOLT	
48	S-1350-16	BUSHING – STRAIN RELIEF	1

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
49			
50			
51			
52			
53	43047	BRACKET – REAR TABLE COVER RH	1
54	43048	BRACKET – REAR TABLE COVER LH	1
55	43044	COVER – REAR STAND	1
56	H-6923-44012	SCREW – #4-40 x 3/4 ROUND HEAD	2
57	H-6913-508	SCREW – 5/16-18 x 1" HEX HEAD	4
58	H-6924-004	SCREW – #0 x 1/4 ROUND HEAD DRIVE	2
59	H-6910-506	SCREW – 5/16-18 x 3/4 BUTTON HEAD	2
60	H-6910-410	SCREW – 1/4-20 x 1-1/4 BUTTON HEAD	2
61	H-6910-102403	SCREW – #10-24 x 3/8 BUTTON HEAD	22
62	H-6918-608	SCREW – 3/8-16 x 1" SOCKET HEAD	4
63	H-6918-410	SCREW – 1/4-20 X 1-1/4 SOC. HEAD	1
64	H-6910-102404	SCREW – #10-24 x 1/2 BUTTON HEAD	16
65	H-6920-103204	SCREW – #10-32 x 1/2 BUTTON HEAD	8
66	H-6910-404	SCREW – 1/4-20 x 1/2 BUTTON HEAD	10
67			
68	H-6910-102406	SCREW – #10-24 x 3/4 BUTTON HEAD	2
69			
70	H-6938-532	SCREW – 5/16-18 x 2" SOCKET SET	2
71	H-6423-5	NUT – 5/16-18 HEX	6
72	H-6423-#10	NUT – #10-24 HEX	6
73	H-5247-1024	NUT – #10-24 FLEX-LOCK	4
74	H-6423-4	NUT – 1/4-20 HEX	2
75	H-6423-#4	NUT – #4-40 HEX	2
76	H-6443-4	NUT – 1/4-28 FLEX-LOCK	1
77	H-6428-4	NUT – 1/4-28 HEX JAM	1
78	H-7327-10	WASHER – 5/16 MEDIUM LOCK	6
79	H-7321-#10	WASHER – #10 PLAIN	14
80	H-7324-#10	WASHER – #10 INTERNAL TOOTH	14
81	H-7324-8	WASHER – 1/4 INTERNAL TOOTH	4
82	H-7324-#4	WASHER – #4 INTERNAL TOOTH	2
83	H-7321-5	WASHER – 5/16 PLAIN	4
84	E-2330	FUSE – 1A T, METRIC "F1" (208-230V ONLY)	1
	E-2330-3	FUSE – 2A T, METRIC "F1" (120V ONLY)	1
85	E-1075-10SB	FUSE – 10A T, "F4 & F7" (208-230V ONLY)	2
	E-1075-15SB	FUSE – 15A T, "F4 & F7" (120V ONLY)	2
86	S-1781-54	LABEL – INTERCONNECTION DIAGRAM	1
87	EE-1766-41	EPROM – PROGRAMMABLE	1
88	H-6938-416	SCREW – 1/4-20 X 1" SOC SET	1
89	5177-3	LABEL – UL LISTING	1
90	5177-4	LABEL – UL/CSA LISTING	1
91	E-1214-63	CONNECTOR – 1/4" NON – INS RING	1

9.3 Main Assembly – Table Asm. View

43000 Sht. 3 of 4, Rev. K



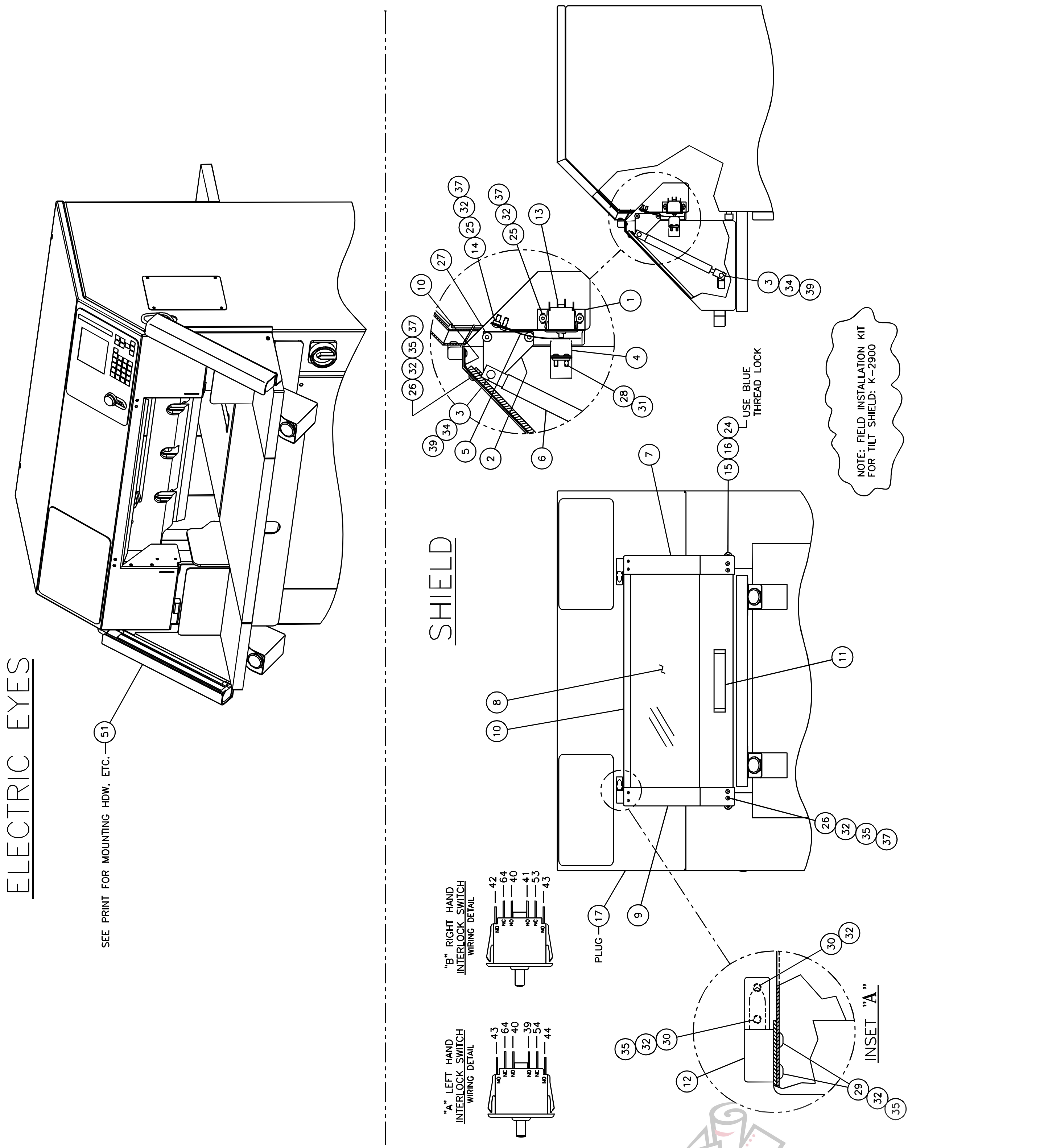
Main Assembly – Table Asm. View – 43000 Sht. 3 of 4, Rev. K

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	10025-2	TABLE	1
2	43057	RH SIDEGUIDE – FRONT	1
3	43058	LH SIDEGUIDE – FRONT	1
4	5-6-27B	STOP – CUT STICK	2
5	4166	CUT STICK	1
6	43059-1	SIDEGUIDE – REAR	2
7	10031	BACKGAUGE	1
8	43004	LEADSCREW	1
9	43005	NUT	1
10	10027-1	BRACKET – BACKGAGE	1
11	43068	REAR PILLOW BLOCK ASSEMBLY	1
12	43062	PULLEY – LEADSCREW	1
13	H-21S-250-1000	PIN – 1/4 x 1" ROLL	1
14	47053	COUPLING – ENCODER DRIVE	1
15	E-2467	ENCODER	1
16	43029	PLATE – ENCODER MOUNT	1
17	E-1152-60	STANDOFF – 3"	2
18	7954	BELT – TIMING	1
19	43063	PULLEY – MOTOR	1
20	43027	BRACKET – MOTOR MOUNT	1
21	43028	COVER – BACKGAGE DRIVE	1
22	E-1600-166	MOTOR – 180 VOLT D.C. (230 V MACHINES)	1
23	10028-2	GUIDE – BACKGAGE BRACKET	1
24	EE-1688-1	PRESETTER ASSEMBLY	REF.
25	10026-5	PILLOW BLOCK – MIDDLE	1
26	S-1295-3	WASHER – THRUST	4
27	S-1300-2	BEARING – THRUST	2
28	43069	FRONT PILLOW BLOCK ASSEMBLY	1
29	43060	STRAP	2
30	S-1944-1	SCREW – NYLON	2
31	43032	WAND – PRESET	1
32	10065	PIN – BACKGAUGE	6
33	S-1781-16	LABEL – CAUTION	1
34	47264	POLYETHYLENE TAPE	22"
35	S-1781-50	LABEL – ELECTRICAL SHOCK	1
36	S-1694-1	TYRAP	1
37	E-1237-6	WIRE NUT	2
38	H-6918-606	SCREW – 3/8-16 x 3/4 SOCKET HEAD	2
39	H-6918-622	SCREW – 3/8-16 x 2-3/4 SOCKET HEAD	6
40	H-6974-412	SCREW – 1/4-28 x 3/4 BRASS TIP SET	2
41	H-6909-83204	SCREW – #8-32 x 1/2 FLAT HEAD	2

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
42	H-6910-83203	SCREW – #8-32 x 3/8 BUTTON HEAD	2
43	H-6894-606	SCREW – 3/8-16 x 3/4 WHIZ LOCK	1
44	H-6910-102403	SCREW – #10-24 x 3/8 BUTTON HEAD	6
45	H-6910-406	SCREW – 1/4-20 x 3/4 BUTTON HEAD	4
46	H-6913-608	SCREW – 3/8-16 x 1" HEX HEAD	2
47	H-6918-406	SCREW – 1/4-20 x 3/4 SOCKET HEAD	4
48	H-7324-8	WASHER – 1/4 INT. TOOTH	12
49	H-7319-6	WASHER – 3/8 PLAIN	4
50	H-7321-4	WASHER – 1/4 PLAIN	6
51	H-7324-#8	WASHER – #8 INT. TOOTH	4
52	H-6428-6	NUT – 3/8-24 HEX JAM	2
53	H-6428-4	NUT – 1/4-28 HEX JAM	2
54	10040-1	BRACKET – PRESET	1
55	E-1152-12	SPACER	2
56	H-6424-4	NUT – 1/4-20 HEX JAM	2
57	H-6918-410	SCREW – 1/4-20 X 1-1/4 SOC CAP	2
58	H-6913-606	SCREW – 3/8-16 x 3/4 HEX HEAD	10
59	H-6910-102404	SCREW – #10-24 X 1/2 BUT HD	8
60	H-6910-410	SCREW – 1/4-20 X 1-1/4 BUT HD	2
61	H-6909-102403	SCREW – #10-24 X 3/8 FLT HD	2
62	H-6938-424	SCREW – 1/4-20 X 1-1/2 SOC SET	2
63	H-6931-624	SCREW – 3/8-16 X 3" SQUARE HD. SET	2
64	H-5254-804	SCREW – 1/2 X 1/2 SOC SHOULDER	1
65	H-7324-#10	WASHER – #10 INT TOOTH	10
66	H-7321-#10	WASHER – #10 PLAIN	2
67	H-6424-4	NUT – 1/4-20 HEX JAM	2
68	H-6424-6	NUT – 3/8-16 HEX JAM	2
69	43103	BELT CLAMP	2
70	44157	BRACKET – BELT ADJ.	1
71	44156	BELT ADJUSTMENT BLOCK	1
72	E-1152-93	SPACER	2
73	47597	PIN – PULLEY	2
74	S-1073-25	RETAINING RING – 1/4 EXTERNAL	4
75	47588	CROWNED PULLEY	1
76	47601	STRAIGHT PULLEY	1
77	44155	BRACKET – BELT	1
78	43104	BELT	1
79	43107	BACKGAGE BLOCK	1
80	H-21S-187-0750	ROLL PIN – 3/16 X 3/4	1
81	H-6918-416	SCREW – 3/8-16 X 2" SOC HEAD CAP	1
82	H-6918-605	SCREW – 3/8-16 x 5/8 SOCKET HEAD	2

9.4 Main Assembly – Tilt Shield / Electric Eyes

43000 Sht. 4 of 4, Rev. C



Main Assembly – 43000 Sht. 4 of 4, Rev. C

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
51	K-3030	KIT - ELEC. EYES	1
52			
53			
54			
55			

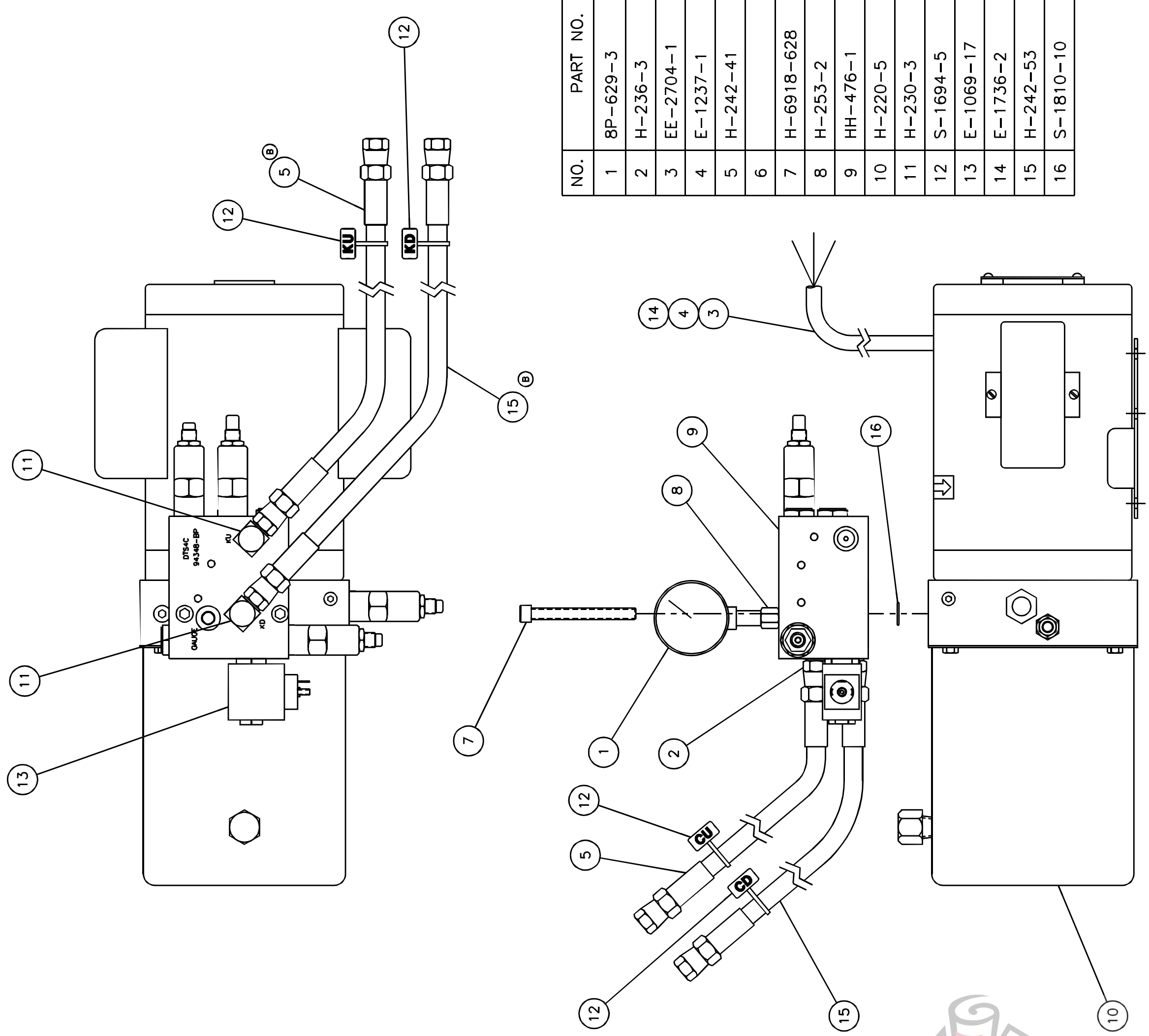
NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	43045	BRACKET - RH COVER SWITCH	1
	43078	BRACKET - LH COVER SWITCH	1
2	43064	BRACKET - RH COVER CYLINDER	1
	43046	BRACKET - LH COVER CYLINDER	1
3	41055	BALL STUD	4
4	43051	ACTUATOR	2
5	43075	STRAP - SWITCHES	2
6	43001	CYLINDER	2
7	43039	FRONT COVER ASM - RH SIDE	1
8	43036-1	WINDOW - TILT COVER	1
9	43038	FRONT COVER ASM - LH SIDE	1
10	43106	SHIELD BRACKET	1
11	56657	HANDLE WITH HARDWARE	1
12	41007	HINGE	2
13	E-2457-6	SWITCH - HOOD INTERLOCK	REF
14	S-1694-2	TYRAP - #10	2
15	A-11074	RUBBER BUMPER	2
16	E-1152-93	SPACER	2
17	E-2196-13	HOLE PLUG	2

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
24	H-6910-102408	SCREW - #10-24 X 1" BUT HD SOC	2
25	H-6910-102404	SCREW - #10-24 X 1/2 BUT HD SOC	8
26	H-6910-102406	SCREW - #10-24 X 3/4 BUT HD SOC	8
27	H-6910-404	SCREW - 1/4-20 X 3/8 BUT HD SOC	4
28	H-6888-83204	SCREW - #8-32 X 1/2 TAMPER PROOF	4
29	H-6920-103204	SCREW - #10-32 X 1/2 BUT HD SOC	4
30	H-6920-103203	SCREW - #10-32 X 3/8 BUT HD SOC	4
31	H-7324-#8	WASHER - #8 INT. TOOTH	4
32	H-7324-#10	WASHER - #10 INT. TOOTH	24
33			
34	H-7327-10	WASHER - 5/16 MED. LOCK	4
35	H-7321-#10	WASHER - #10 PLAIN	14
36			
37	H-6423-#10	NUT - #10-24 HEX	16
38			
39	H-6423-5	NUT - 5/16-18 HEX	4
40			

9.5 Hydraulic Power Unit – 60 Hz

H-477-1, Rev. B

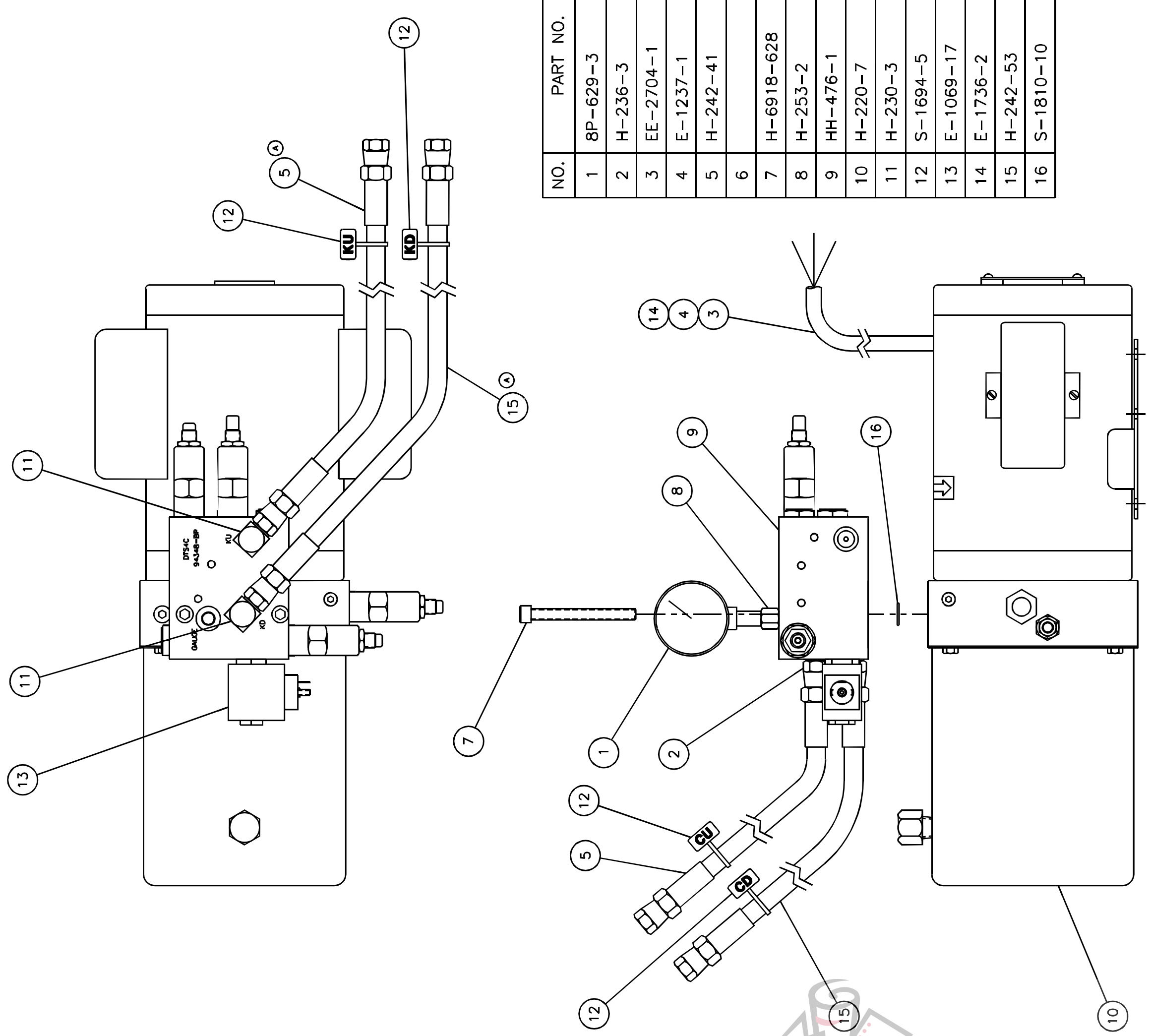
NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	8P-629-3	GAUGE	1
2	H-236-3	ADAPTER, 9/16-18 'O' RING TO 9/16-18 TUBE	2
3	EE-2704-1	CORD ASSEMBLY – HYD. MOTOR	1
4	E-1237-1	WIRE NUT	2
5	H-242-41	HYDRAULIC HOSE ASM., 25" LONG (KU & CU)	2
6			
7	H-6918-628	3/8-16 X 3-1/2 SOCKET HD CAP SCREW	2
8	H-253-2	ADAPTER	1
9	HH-476-1	MANIFOLD ASSEMBLY	1
10	H-220-5	HYDRAULIC POWER UNIT (60 HZ)	1
11	H-230-3	ELBOW – 9/16-18 "O" RING TO 9/16-18 TUBE	2
12	S-1694-5	TYRAP – IDENTIFICATION	4
13	E-1069-17	COIL – 24V	1
14	E-1736-2	QUENCH ARC	1
15	H-242-53	HYDRAULIC HOSE ASSEMBLY, 35" LONG (KD & CD)	2
16	S-1810-10	O-RING	2



9.6 Hydraulic Power Unit – 50 Hz

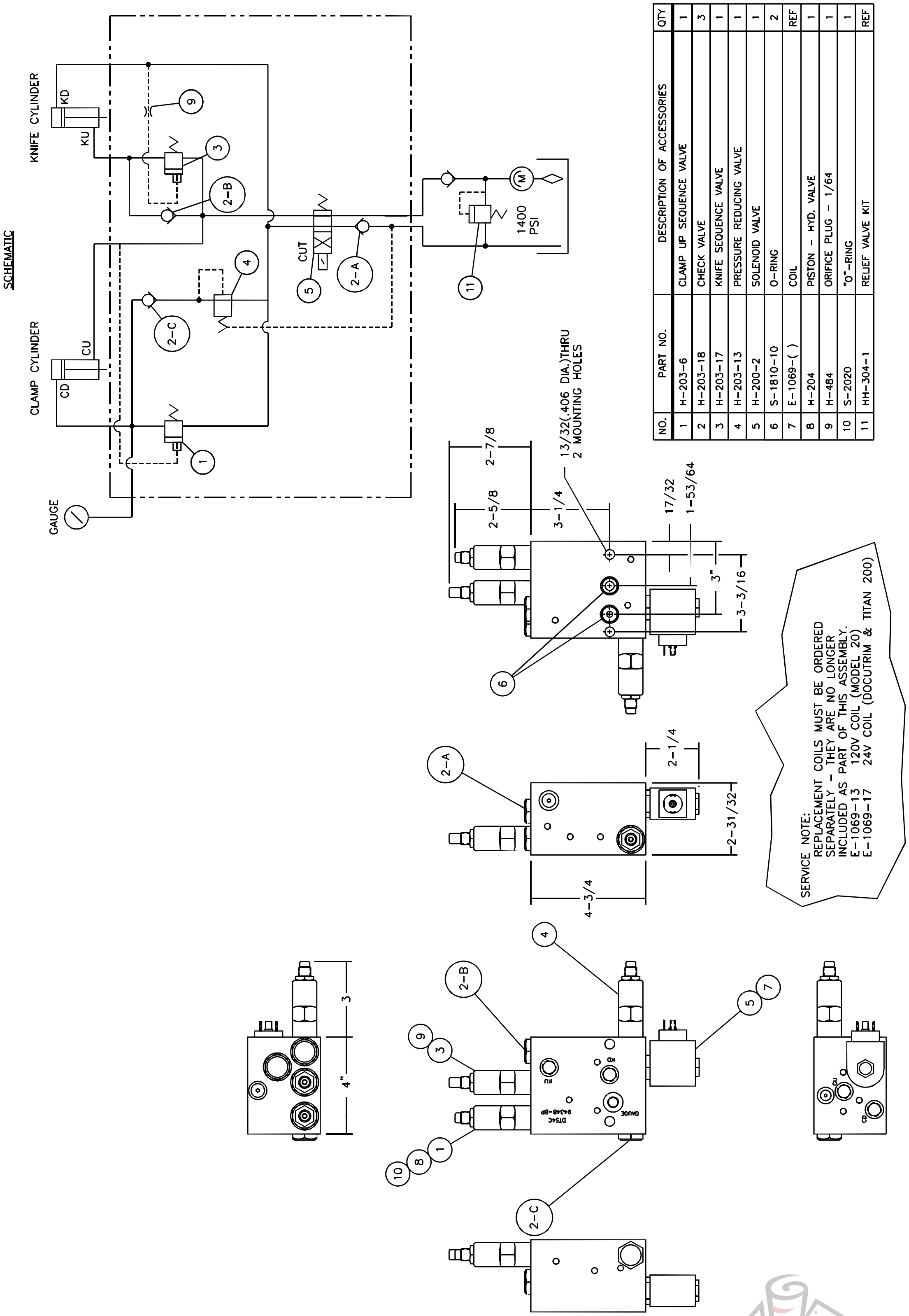
H-477-2, Rev. A

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	8P-629-3	GAUGE	1
2	H-236-3	ADAPTER, 9/16-18 'O' RING TO 9/16-18 TUBE	2
3	EE-2704-1	CORD ASSEMBLY – HYD. MOTOR	1
4	E-1237-1	WIRE NUT	2
5	H-242-41	HYDRAULIC HOSE ASM., 25" LONG (KU & CU)	2
6			
7	H-6918-628	3/8-16 X 3-1/2 SOCKET HD CAP SCREW	2
8	H-253-2	ADAPTER	1
9	HH-476-1	MANIFOLD ASSEMBLY	1
10	H-220-7	HYDRAULIC POWER UNIT (50HZ)	1
11	H-230-3	ELBOW – 9/16-18 "O" RING TO 9/16-18 TUBE	2
12	S-1694-5	TYRAP – IDENTIFICATION	4
13	E-1069-17	COIL – 24V	1
14	E-1736-2	QUENCH ARC	1
15	H-242-53	HYDRAULIC HOSE ASSEMBLY, 35" LONG (KD & CD)	2
16	S-1810-10	O-RING	2



9.7 Hydraulic Manifold Assembly & Schematic

HH-476-1

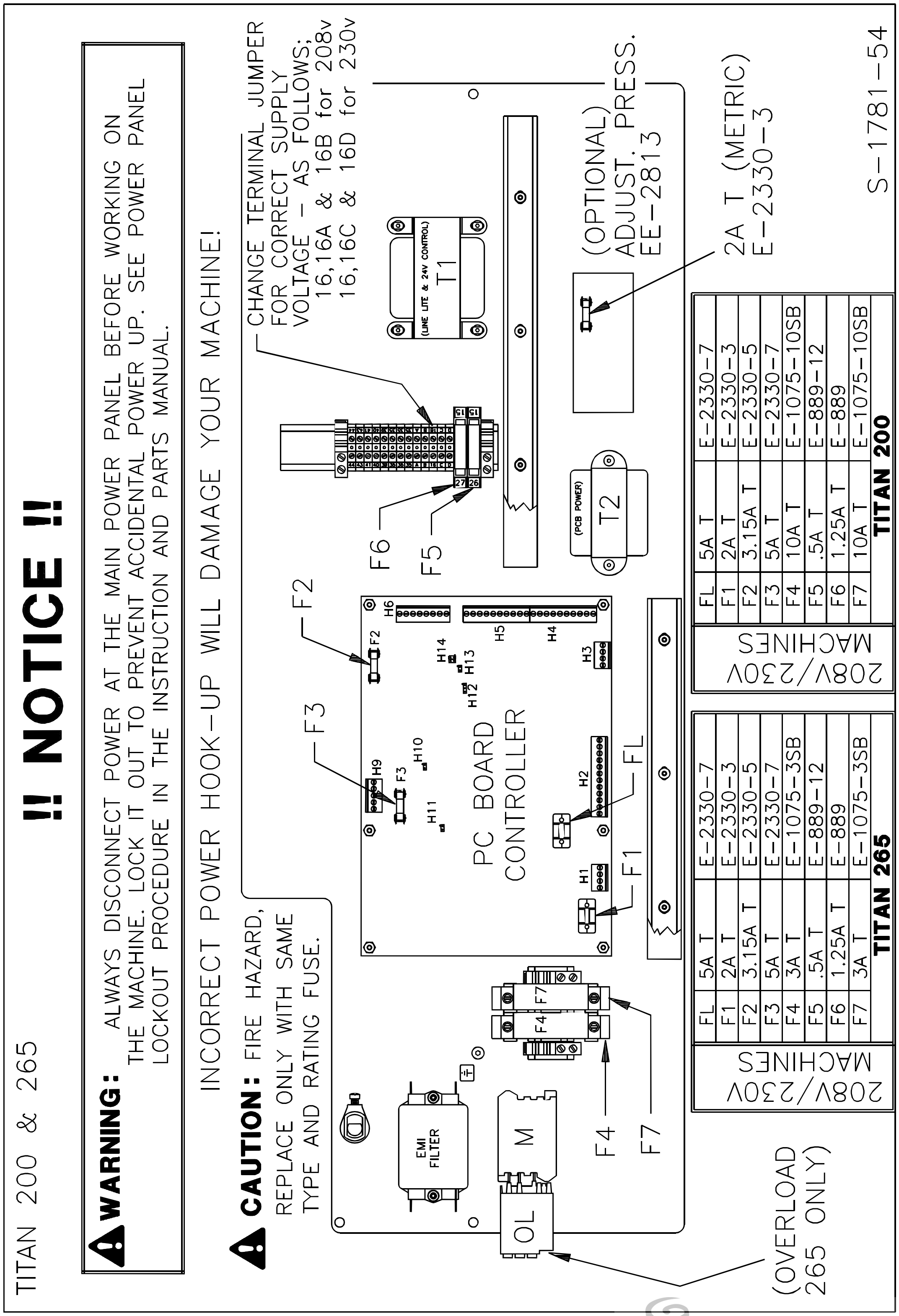


NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	H-203-6	CLAMP UP SEQUENCE VALVE	1
2	H-203-18	CHECK VALVE	3
3	H-203-17	KNIFE SEQUENCE VALVE	1
4	H-203-13	PRESSURE REDUCING VALVE	1
5	H-200-2	SOLENOID VALVE	1
6	S-1810-10	O-RING	2
7	E-1069-( )	COIL	REF
8	H-204	PISTON - HYD. VALVE	1
9	H-484	ORIFICE PLUG - 1/64	1
10	S-2020	"O"-RING	1
11	HH-304-1	RELIEF VALVE KIT	REF

SERVICE NOTE:
REPLACEMENT COILS MUST BE ORDERED SEPARATELY - THEY ARE NO LONGER INCLUDED AS PART OF THIS ASSEMBLY.
E-1069-13 120V COIL (MODEL 20)
E-1069-17 24V COIL (DOCUTRIM & TITAN 200)

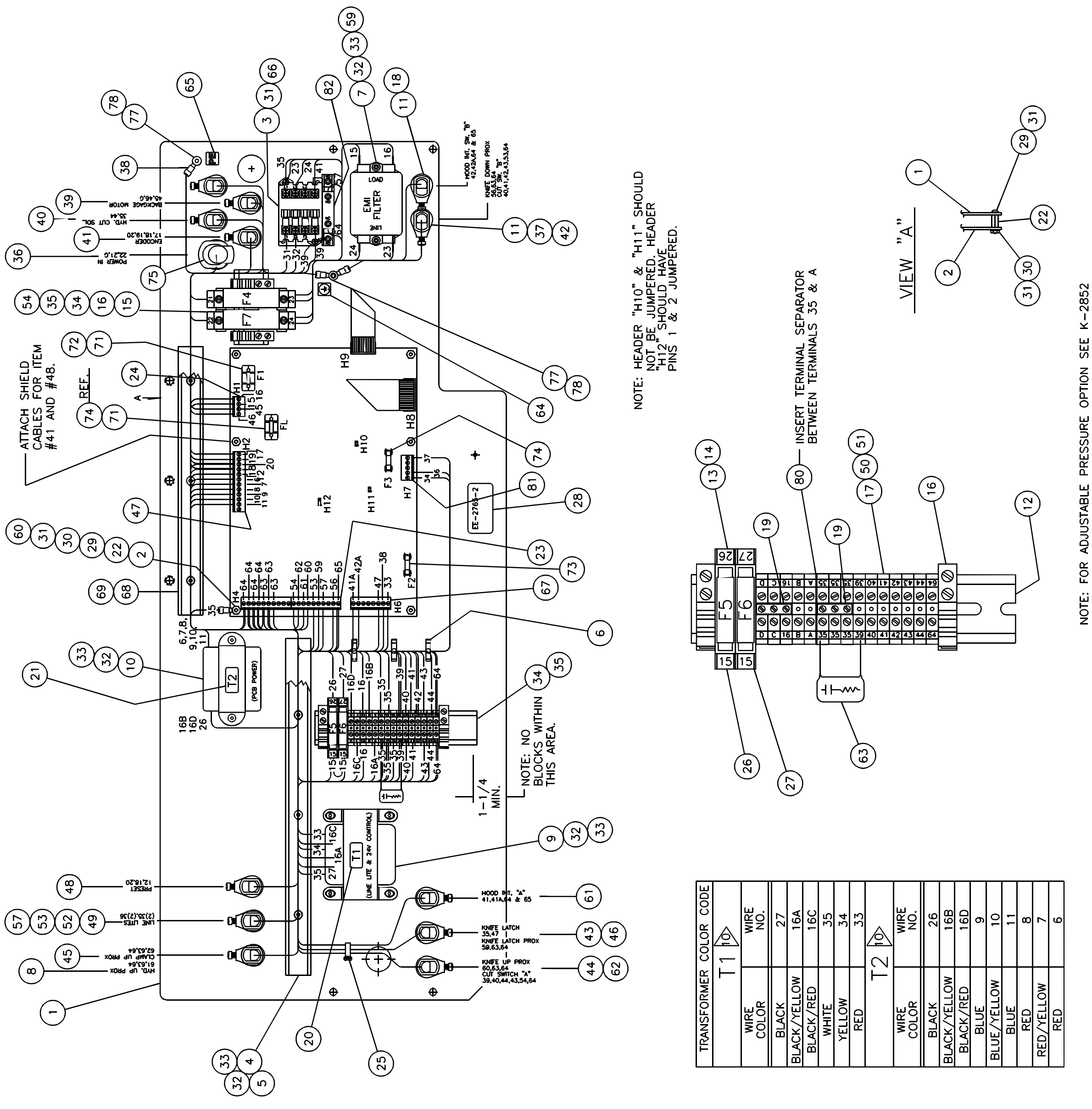
9.8 Power Panel Label

S-1781-54, Rev. C



9.9 Power Panel Assembly

EE-2765-1, Rev. F



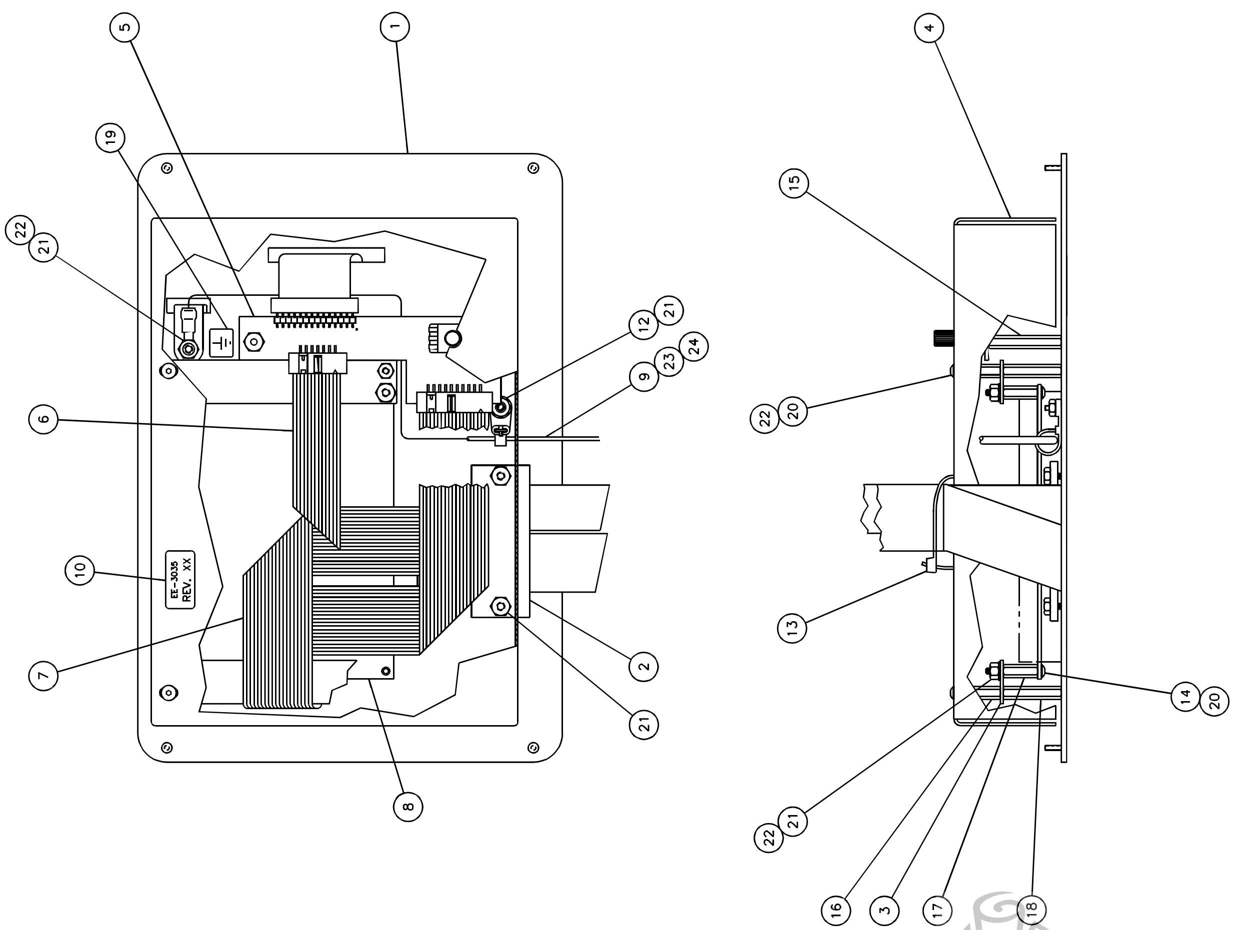
Power Panel Assembly – EE-2765-1, Rev. F

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	43006-1	PANEL – ELECTRICAL	1
2	EE-2807-1	P.C.B. ASSEMBLY – CONTROLLER	1
3	E-2805	STARTER – CONTACTOR	1
4	E-1429-14	WIRE DUCT – 13-1/2" LONG	1
5	E-2719-14	COVER – WIRE DUCT, 13-1/2" LONG	1
6	E-2186-8	WIRE SADDLE, LOCKING TOP	3
7	E-2730-3	FILTER – EMI, PANEL MOUNT	1
8	EE-2770-1	PROXIMITY ASSEMBLY – HYDRUALIC UP	1
9	E-2742-6	TRANSFORMER – 120/208/230V, 12/24V SEC.	1
10	E-2742-5	TRANSFORMER – 120/230V PRIM., 16/24V SEC.	1
11	S-1350-16	STRAIN RELIEF – CABLE	12
12	E-1977-18	RAIL – TERMINAL BLOCK, 6-1/2 LONG	1
13	E-1974-2	FUSE BLOCK – TERMINAL MOUNT, GLASS FUSE	2
14	E-1890	FUSE HOLDER – GLASS FUSE	2
15	E-1974-5	FUSE HOLDER – RAIL MOUNT, MIDGET	2
16	E-2070-1	END BRACKET – TERMINAL BLOCK	4
17	E-2068-8	TERMINAL BLOCK – THROUGH, #10 GA.	15
18	EE-2902	CABLE ASSEMBLY – HOOD INTERLOCK "B" (RH)	1
19	E-2507-3	FIXED BRIDGE – TERMINAL BLOCK – 3 POLE	2
20	E-1584-51	LABEL – TRANSFORMER, "T1"	1
21	E-1584-52	LABEL – TRANSFORMER, "T2"	1
22	E-1152-24	STAND-OFF – 1/2" LONG, #6-32 THR'D	6
23	E-2066-10	CONNECTOR – PLUG IN PCB TERMINAL BLOCK	2
24	E-2066-4	CONNECTOR – PLUG IN PCB TERMINAL BLOCK	1
25	S-1694	CABLE TIE	4
26	E-889-12	FUSE – GLASS, 1/2A T "F5"	1
27	E-889	FUSE – GLASS, 1-1/4A T "F6"	1
28	E-1584-( )	LABEL – PART NUMBER/ REVISION LEVEL	1
29	H-6910-63203	SCREW – #6-32 X 3/8" BUT HD	6
30	H-6423-#6	NUT – #6-32 HEX	6
31	H-7324-#6	WASHER – #6 INT. TOOTHLOCK	14
32	H-6910-83204	SCREW – #8-32 X 1/2" BUT	14
33	H-7324-#8	WASHER – #8 INT. TOOTHLOCK	14
34	H-6910-102403	SCREW – #10-24 X 3/8" BUT HD	4
35	H-7324-#10	WASHER – #10 INT. TOOTHLOCK	4
36	EE-2766	CABLE ASSEMBLY – MAIN DISCONNECT SWITCH	1
37	EE-2774	CABLE ASSEMBLY – INTERLOCK SWITCH "B"	1
38	E-1214-63	CONNECTOR-1/4" NON-INS RING	REF
39	EE-2768	CABLE ASSEMBLY – BACKGAGE MOTOR	1
40	EE-2769	CABLE ASSEMBLY – CUT SOLENOID	1
41	EE-2534-1	CABLE ASSEMBLY – ENCODER	1
42	EE-2770-3	PROXIMITY SWITCH ASSEMBLY – KNIFE DOWN	1
43	EE-2770	PROXIMITY SWITCH ASSEMBLY – KNIFE LATCH	1
44	EE-2770-4	PROXIMITY SWITCH ASSEMBLY – KNIFE UP	1
45	EE-2770-2	PROXIMITY SWITCH ASSEMBLY – CLAMP UP	1
46	EE-2775	CABLE ASSEMBLY – KNIFE LATCH	1
47	E-2066-12	CONNECTOR – PLUG-IN PCB TERM. BLOCK	1
48	EE-1688-1	CABLE ASSEMBLY – PRESET	1
49	E-709-R	WIRE – #18GA. RED MTW 37" LONG, WIRE #35	2
50	E-1356-132	LABEL – TERMINAL BLOCK	1
51	E-1356-131	LABEL – TERMINAL BLOCK	1
52	E-709-R	WIRE – #18GA. RED MTW 42" LONG, WIRE #36	1
53	E-709-R	WIRE – #18GA. RED MTW 36" LONG, WIRE #36	1
54	E-1977-3	RAIL – TERMINAL BLOCK, 3" LONG	1
55	E-849-R	WIRE – #16 GA. RED MTW	AS NEEDED
56	E-709-R	WIRE – #18 GA. RED MTW	AS NEEDED
57	E-1214-9	CONNECTOR – #8 INS. RING	2
58	E-1214-54	CONNECTOR – 1/4" FULLY INS. MALE Q.D.	2
59	E-1214-49	CONNECTOR – 1/4" FULLY INS. FEMALE Q.D.	4
60	E-1214-36	CONNECTOR – #6 INS. RING	1
61	EE-2901-1	CABLE ASSEMBLY – HOOD INT. SWITCH "A"	1
62	EE-2774-1	CABLE ASSEMBLY – INTERLOCK SWITCH "A"	1
63	E-1736-3	QUENCHARC	1
64	S-1781-42	LABEL – GROUND	1
65	S-1781-45	LABEL – "PE" PROTECTED EARTH	1
66	H-6910-63205	SCREW – #6-32 X 5/8" BUT HD	2
67	E-2066-8	CONNECTOR – PLUG IN PCB TERMINAL BLOCK	1
68	E-1429-15	WIRE DUCT – 10-3/4" LONG	1
69	E-2719-15	COVER – WIRE DUCT, 10-3/4" LONG	1
70	E-702-R	WIRE – #14 GA. RED MTW	AS NEEDED
71	E-2373	FUSE HOLDER COVER – METRIC	2
72	E-2330-3	FUSE – 2A SLO-BLO, GLASS METRIC (F1)	1
73	E-2330-5	FUSE – 3.15A SLO-BLO, GLASS METRIC (F2)	1
74	E-2330-7	FUSE – 5A SLO-BLO, GLASS METRIC (F3)	1
75	S-1350-5	STRAIN RELIEF – CABLE	1
76	E-1453-6	SHRINK TUBING – 1/8" DIA., 1" LONG	2
77	H-6910-404	SCREW – 1/4-20 X 1/2 BUT HD CAP	2
78	H-7324-8	WASHER – 1/4" INT. TOOTHLOCK	2
79	E-1599-11	IC – 32 PIN PACKAGE (BLANK)	1
80	E-2864	SEPARATOR PLATE – TERMINAL BLOCK	1
81	E-2066-5	CONNECTOR – PLUG IN PCB TERM. 5 POLE	1
82	E-2376-4	CONTACTOR – AUX. (1) N.O. (1) N.C.)	1

9.10 Control Console Assembly

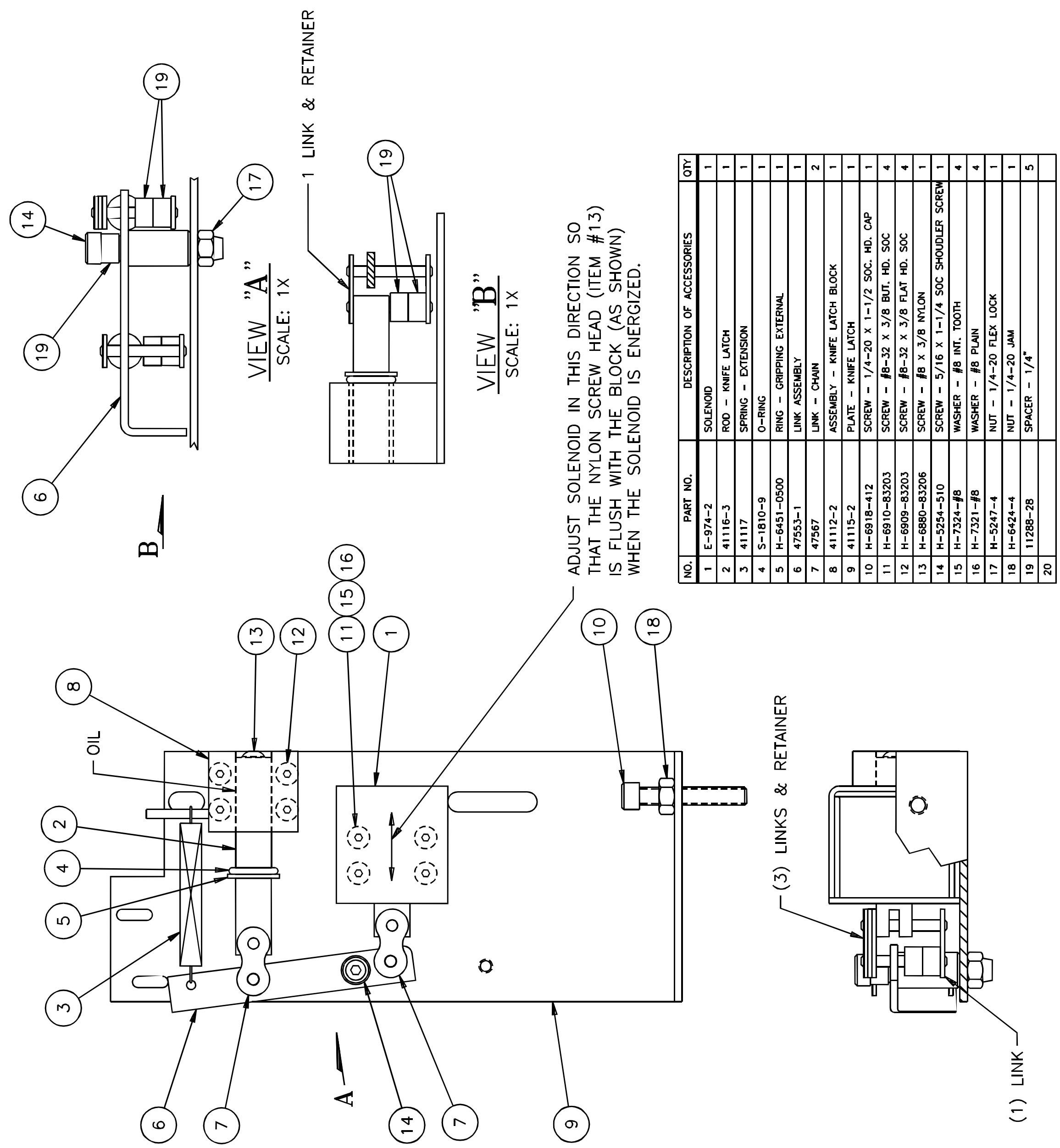
EE-3035, Rev. A

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	43102	PANEL – CONTROL CONSOLE	1
2	43066	STRAIN RELIEF – RIBBON CABLE	1
3	43071	PLATE – DISPLAY MOUNT	2
4	43067	COVER – CONTROL PANEL	1
5	EE-2764	PCB ASSEMBLY – KEYBOARD MATE	1
6	EE-2855-3	RIBBON CABLE ASM. – KEYPAD, 14 COND.	1
7	EE-2855-2	RIBBON CABLE ASM. – DISPLAY, 20 COND.	1
8	EE-2758-1	DISPLAY ASSEMBLY – LCD	1
9	E-2743	WIRE – #18 GA. GRN/YEL EURO GND. 37" LONG	1
10	E-1584-( )	LABEL – ASM. NO./REV. LEVEL	1
11			
12	S-1694-2	TYRAP – #10	1
13	S-1694-1	TY-WRAP	1
14	S-1864-3	NYLON WASHER	4
15	E-1152-59	STAND-OFF – 1-1/4" LONG	2
16	E-1152-57	STAND-OFF – 3/4" LONG	4
17	E-1152-63	STAND-OFF – 19/32" LONG	4
18	E-1152-58	STAND-OFF – 1" LONG	4
19	S-1781-42	LABEL – GROUND SYMBOL	1
20	H-6910-63202	SCREW – #6-32 X 1/4 BUT. HD. SOC.	8
21	H-6423-#6	NUT – #6-32 HEX	10
22	H-7324-#6	WASHER – #6 INT. TOOTH	11
23	E-1214-10	CONNECTOR – #6 INS. RING (14-18 GA)	1
24	E-1214-64	CONNECTOR – 1/4" NON-INS. RING	1



9.11 Knife Latch Assembly

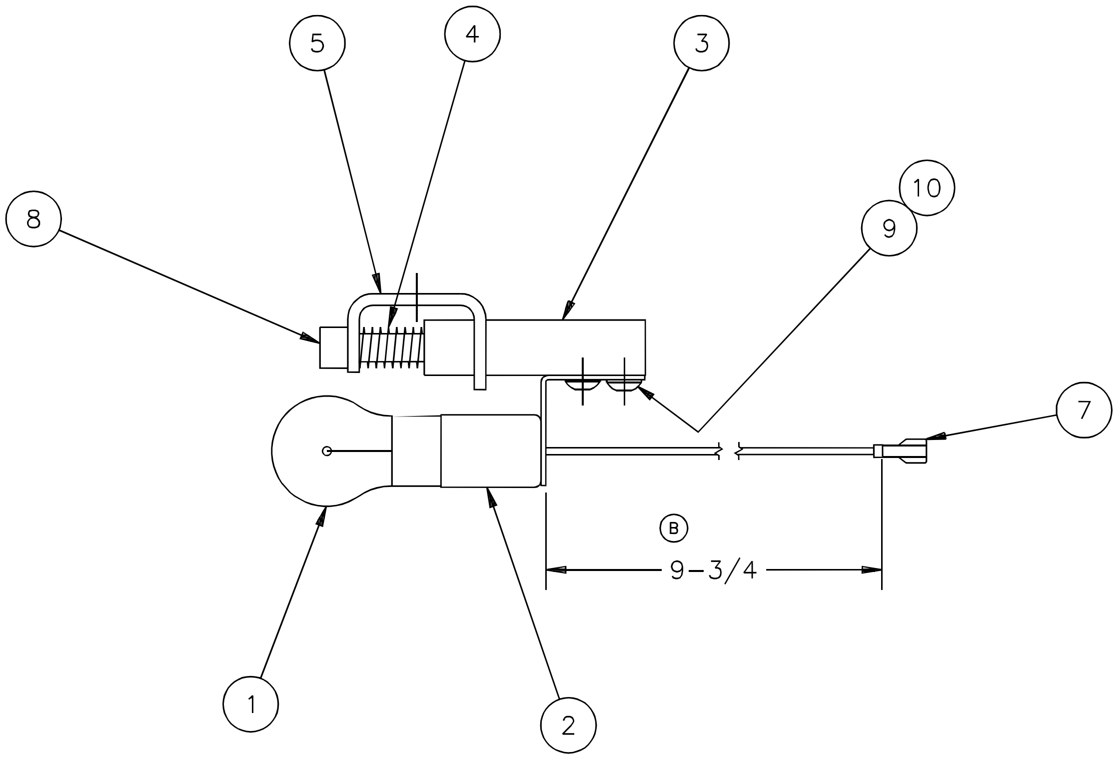
41120-3, Rev. A



NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	E-974-2	SOLENOID	1
2	41116-3	ROD - KNIFE LATCH	1
3	41117	SPRING - EXTENSION	1
4	S-1810-9	O-RING	1
5	H-6451-0500	RING - GRIPPING EXTERNAL	1
6	47553-1	LINK ASSEMBLY	1
7	47567	LINK - CHAIN	2
8	41112-2	ASSEMBLY - KNIFE LATCH BLOCK	1
9	41115-2	PLATE - KNIFE LATCH	1
10	H-6918-412	SCREW - 1/4-20 X 1-1/2 SOC. HD. CAP	1
11	H-6910-83203	SCREW - #8-32 X 3/8 BUT. HD. SOC	4
12	H-6909-83203	SCREW - #8-32 X 3/8 FLAT HD. SOC	4
13	H-6880-83206	SCREW - #8 X 3/8 NYLON	1
14	H-5254-510	SCREW - 5/16 X 1-1/4 SOC SHOULDER SCREW	1
15	H-7324-#8	WASHER - #8 INT. TOOTH	4
16	H-7321-#8	WASHER - #8 PLAIN	4
17	H-5247-4	NUT - 1/4-20 FLEX LOCK	1
18	H-6424-4	NUT - 1/4-20 JAM	1
19	11288-28	SPACER - 1/4"	5
20			

9.12 Line Light Assembly

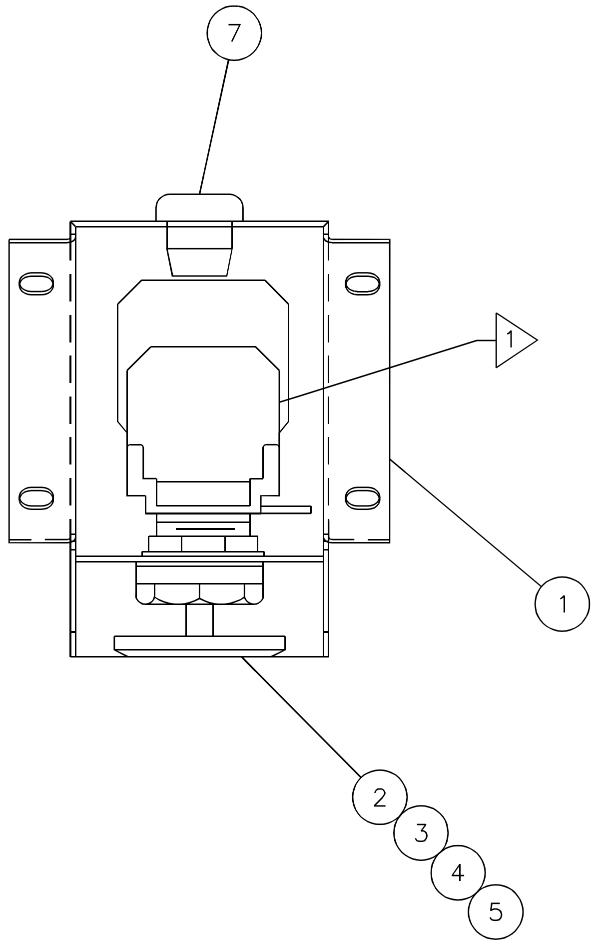
EE-2779, Rev. B



NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	E-967-1	LAMP – LINE LIGHT	1
2	E-1260-1	SOCKET – LINE LIGHT	1
3	9127-1	SUPPORT – LINE LIGHT	1
4	35048-13	SPRING	1
5	9126-2	BRACKET – LINE LIGHT	1
6			
7	E-1214-47	CONNECTOR – FEM. FULLY INS. QUICK DISC.	1
8	H-6918-410	SCREW – 1/4-20 X 1-1/4 SOC. HD. CAP	1
9	H-6910-83203	SCREW – #8-32NC X 3/8" BUT HD CAP	2
10	H-7324-#8	WASHER – #8 INTERNAL TOOTH	2

9.13 Cut Button Assembly

EE-2851-3 Rev. A



NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	16566–1	BOX – PUSHBUTTON	1
2	E–2074–7	SWITCH BODY – PUSHBUTTON, GREEN	1
3	E–1839–9	CONTACT BLOCK – (1) N.O., SWITCH	1
4	E–1839–10	CONTACT BLOCK – (2) N.O., SWITCH	1
5	16520	ANTI–ROTATION RING	1
6			
7	S–1350–13	STRAIN RELIEF – CABLE	1

NOTES:

1. WHEN SNAPPING THE CONTACT BLOCKS INTO THE SUPPLIED HOLDERS BE SURE THAT THE CONTACT IS MOUNTED SO THAT IT'S PLUNGER IS ON THE INSIDE OF THE HOLDER.

9.14 Fuse Value and Function

Location	Fuse Value/Type	Circuit	Transformer/Voltage	Dimension
F1	2A-T	Backgauge Motor	230 VAC	5mm x 20mm
F2	3.15A-T	Pcb output	T1.Secondary	5mm x 20mm
F3	5A-T	Line Lights	12 VDC	5mm x 20mm
F4	10A-T	Main – Hot	230 VAC	13/32" x 1-1/2"
F5	.5A-T	5V-logic, preset, encoder/15v-prox.	T2 Primary	¼" x 1-1/4"
F6	1.25A-T	12v, 24v Pcb outputs	T1 Primary	¼" x 1-1/4"
F7	10A-T	Main – Neutral	230 VAC	13/32" x 1-1/2"
FL	5A-T	Backgauge Motor	230 VAC	5mm x 20mm

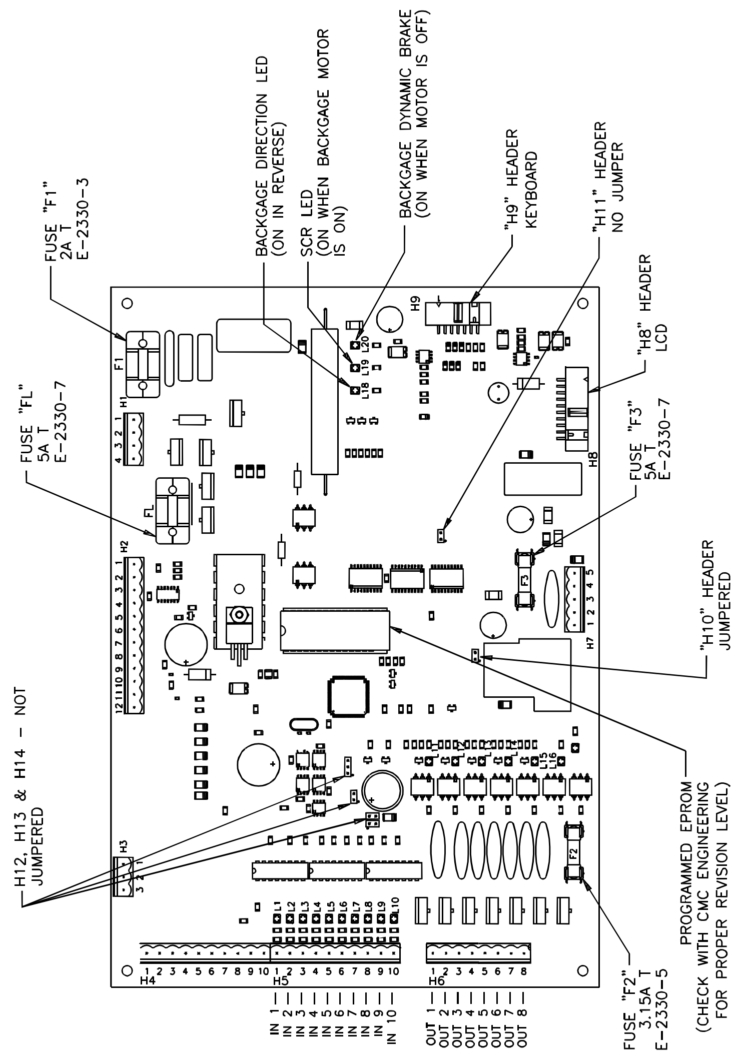
T = Time Delay Fuse

9.15 Control P.C. Assembly

EE-2807-1

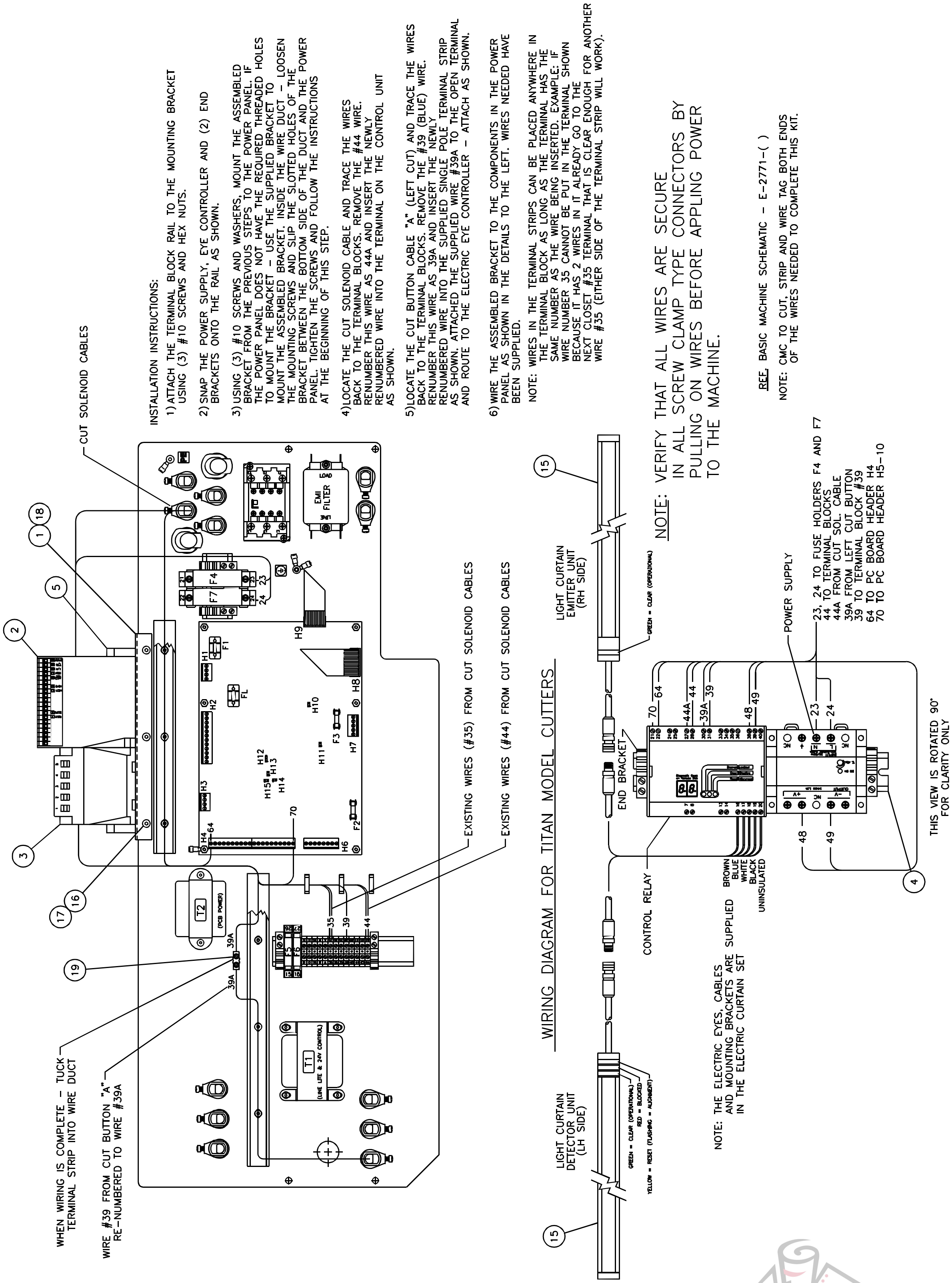
DESCRIPTION	IDLE STATUS
IN1: Left Interlock Switch	off when cover is closed
IN2: Clamp Up Limit	on when clamp is up
IN3: Hyd. Cylinder Up Limit	on when hyd. are up
IN4: Knife Up Limit	on when knife is up
IN5: Right Interlock Switch	off when cover is closed
IN6: Knife Latch Switch	on with pin under knife bar
IN7: Not Used	
IN8: Cut Switch	on when switch is pushed
IN9: Knife Down Limit	off when knife is down
IN10: Not Used	

DESCRIPTION	IDLE STATUS
OUT1: Hydraulic Motor	on when motor is running
OUT2: Cut Solenoids	off except for downward motion
OUT3: Not Used	
OUT4: Unlock Solenoid	off when clamp is up
OUT5: Line Light	on when line lights are on
OUT6: Knife Latch Solenoid	off when knife is up
OUT7: Cut Sw. Light	on when ready for cut



9.16 Electric Eye Assembly

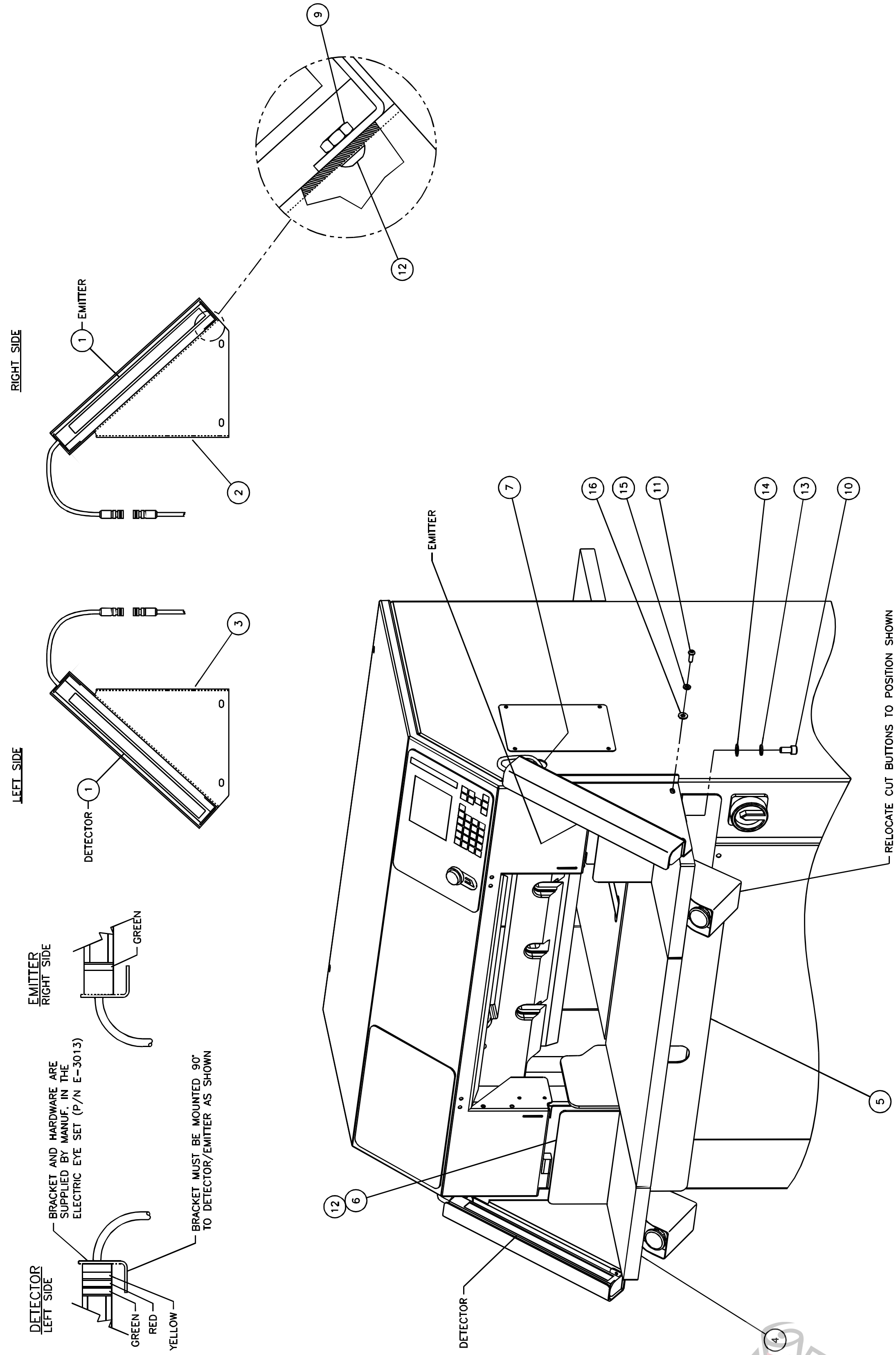
K-3030 Sheet 1, Rev. B



Electric Eye Assembly – K-3030 Sheet 1, Rev. B

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	43100	BRACKET – CONTROLLER MOUNT	1
2	E–3001	RELAY – SAFETY OUTPUT (BANNER)	REF
3	E–2810	POWER SUPPLY – 24V OUTPUT	1
4	E–1977–15	RAIL – TERMINAL BLOCK, 9" LONG	1
5	E–2070–1	END BRACKET – TERMINAL BLOCK	2
6	E–702–R	WIRE – #14GA. RED MTW 29" LONG (#23)	1
7	E–702–R	WIRE – #14GA. RED MTW 29" LONG (#24)	1
8	E–709–R	WIRE – #18GA. RED MTW 21" LONG (#70)	1
9	E–709–R	WIRE – #18GA. RED MTW 25" LONG (#64)	1
10	E–709–R	WIRE – #18GA. RED MTW 24" LONG (#44)	2
11	E–849–R	WIRE – #16 GA. RED MTW 21" LONG (#48)	1
12	E–849–R	WIRE – #16 GA. RED MTW 25" LONG (#49)	1
13	E–709–R	WIRE – #18 GA. RED MTW 22" LONG (#39A)	1
14	E–709–R	WIRE – #18 GA. RED MTW 22" LONG (#39)	1
15	E–3014	ELECTRIC CURTAIN SET – 12" TITAN 200 ONLY	1
16	H–7324–#10	WASHER – #10 INT. TOOTHLOCK	6
17	H–6910–102404	SCREW – #10–24 X 1/2" BUT HD	6
18	S–1694–2	TYRAP – WIRE	2
19	E–2626	TERMINAL STRIP – SINGLE POLE	1

Electric Eye Assembly – K-3030 Sheet 2, Rev. A

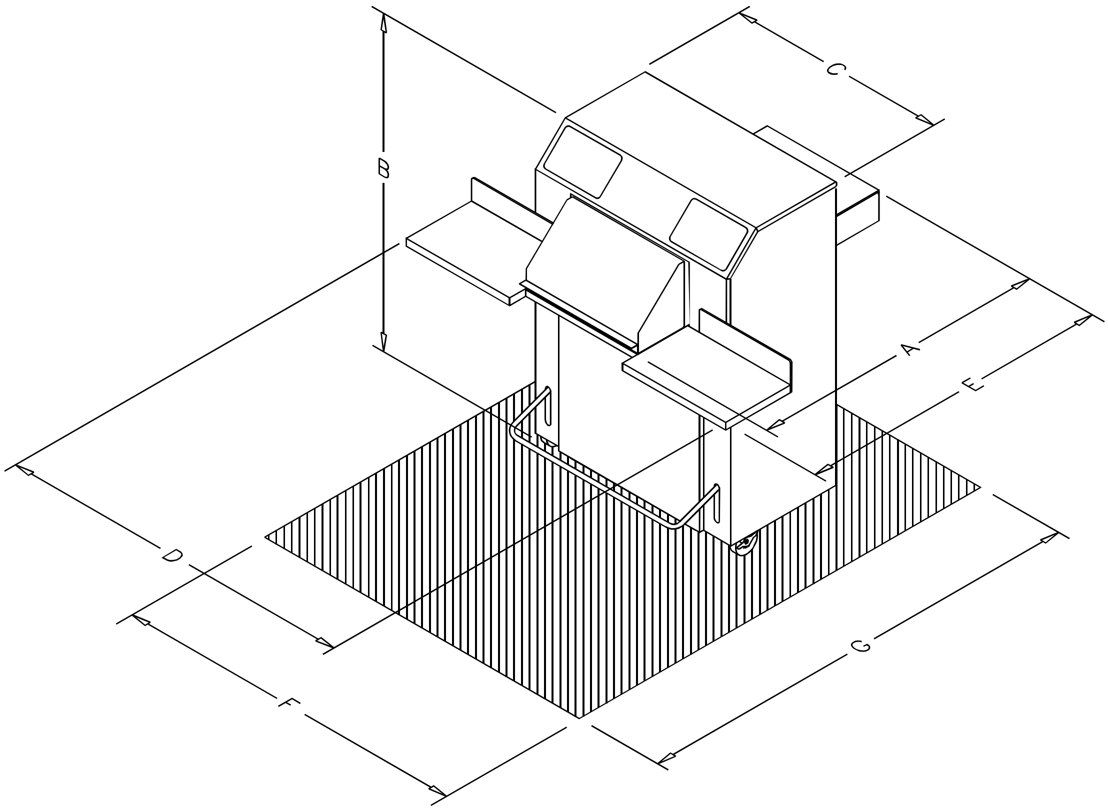


Electric Eye Assembly – K-3030 Sheet 2, Rev. A

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	E-3014	ELEC. EYE CURTAIN SET - 12"	REF
2	43096	ELEC EYE BRACKET, RH	1
3	43097	ELEC EYE BRACKET, LH	1
4	43094	TABLE EXTENSION	2
5	43098	SUPPORT - TABLE EXTENSIONS	1
6	43095	BACK PLATE	2
7	E-1172-23	STRAIN RELIEF	2
8			
9	H-6423-#10	NUT - #10-24 HEX KEP	4
10	H-6918-606	SCREW - 3/8-16 X 3/4 SOC HD	10
11	H-6910-406	SCREW - 1/4-20 X 3/4 BUT HD	4
12	H-6910-102404	SCREW - #10-24 X 1/2 BUT HD	8
13	H-7327-12	WASHER - 3/8 MED. LOCK	10
14	H-7321-6	WASHER - 3/8 PLAIN	10
15	H-7327-8	WASHER - 1/4 MED. LOCK	4
16	H-7321-4	WASHER - 1/4 PLAIN	4
17			
18			
19			
20			

9.17 Titan 200 Floor Plan

43000-FP



Symbol	Inch	cm
A	49.0	124
B	53.0	135
C	36.0	91
D	58.0	147
E	53.0	135
F	58.0	147
G	74.0	188
Net Wt.	755 lb	342 kg

MACHINE DIMENSIONS: AxBxC

MACHINE DIMENSIONS WITH SIDE TABLE EXTENTIONS: DxBxE

OPERATING AREA: FxG

OVERALL MAINTENANCE AREA: FxG

NOTES

10.0 Safety Systems Test

Machine manufacturer CHALLENGE Model TITAN 200

Serial Number ___________________

Frequency of test: **THESE TESTS SHOULD BE PERFORMED AT THE BEGINNING OF EACH WORK DAY.**

Turn the power on and press CLEAR to preset the backgauge. Make sure the knife and clamp are in the up position (if they are not, follow the instructions in this manual to send them up).

Machines with Front Guards:

Test #1: With the front guard open, press the cut buttons. Nothing should happen. If the knife and/or clamp come down with the front guard open, do not use the machine. Repair or adjustment is needed.

Test #2: Close the front guard and press the cut buttons. While the clamp or knife is coming down, open the front guard. The knife and clamp should immediately return to the up position. If they do not, do not use the machine. Repair or adjustment is needed.

Machines with Electric Eyes:

Test #1: Wave a test object 12mm in diameter between the electric eye beams. The indicator lights should indicate the eyes are blocked. If they do not, do not use the machine. Repair or adjustment is needed.

Test #2: If machine equipped with electric eyes, while making a cut, lean into the electric eye beams. The knife and clamp should immediately return to the up position. If they do not, do not use the machine. Repair or adjustment is needed.

Please enter date and initials for both tests.

Date ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 1 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 2 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Date ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 1 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 2 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Date ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 1 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 2 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Date ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 1 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 2 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Date ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 1 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Test 2 ______ ______ ______ ______ ______ ______ ______ ______ ______ ______ ______

Repairs	Initials of Repairer	Date